

TECHNOLOGY

REVIEW

May 1957



technology review

Published by MIT

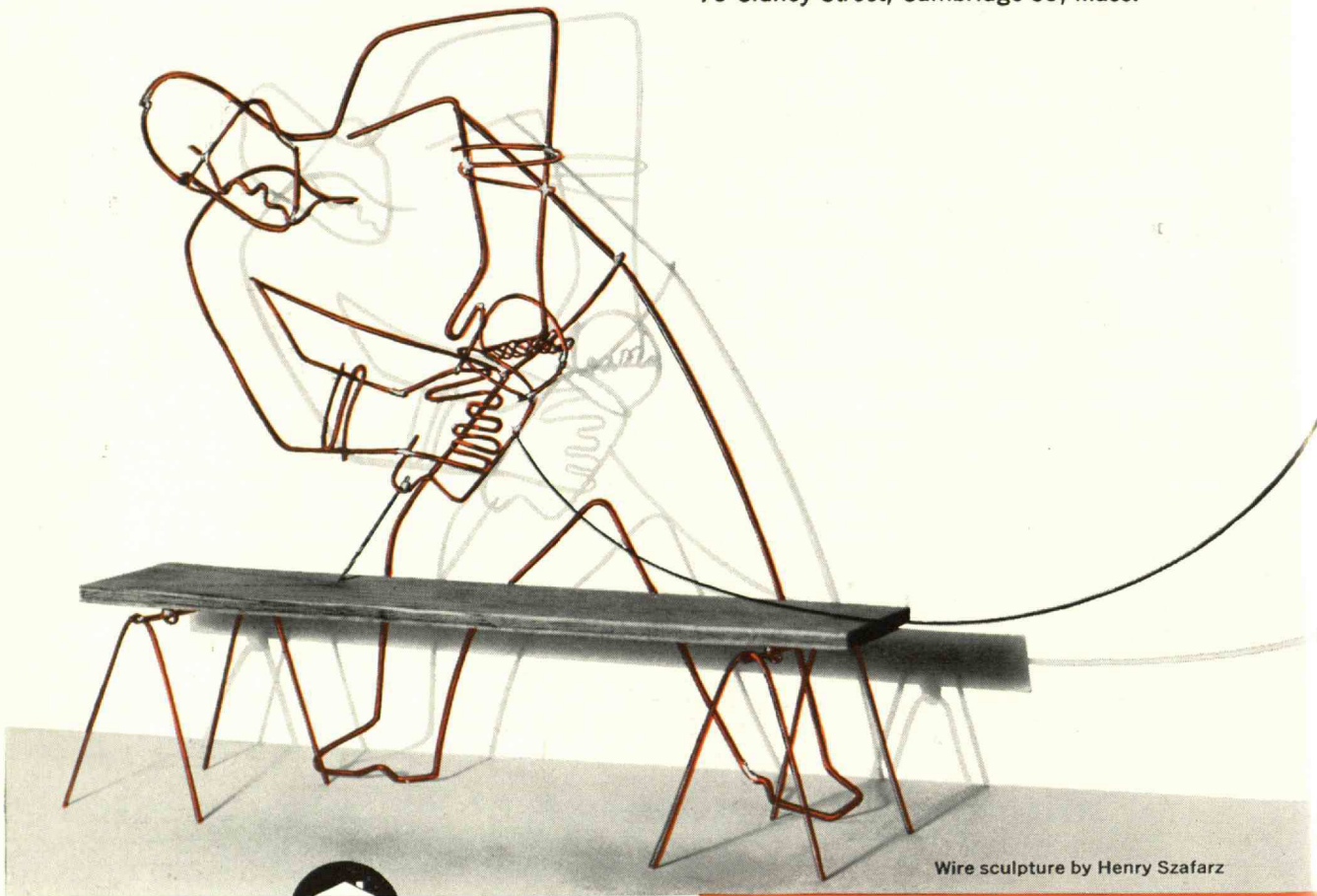
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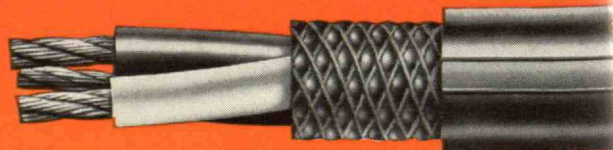
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Wire sculpture by Henry Szafarz



Simplex



Tirex Portable Cable

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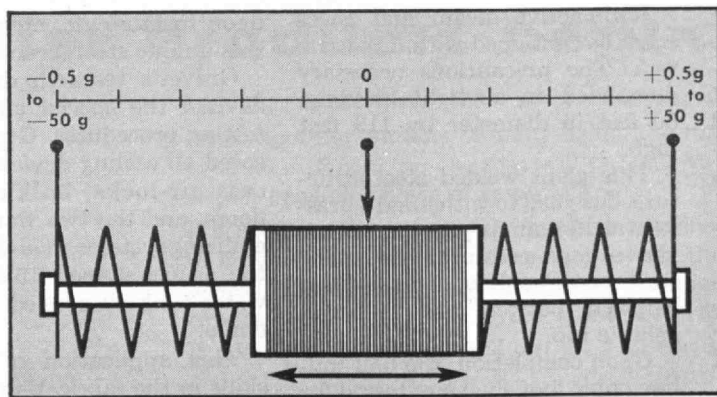
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Shown Actual Size

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- VISCOUS DAMPING
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- ENVIRONMENT: MEETS MIL-E-5272A

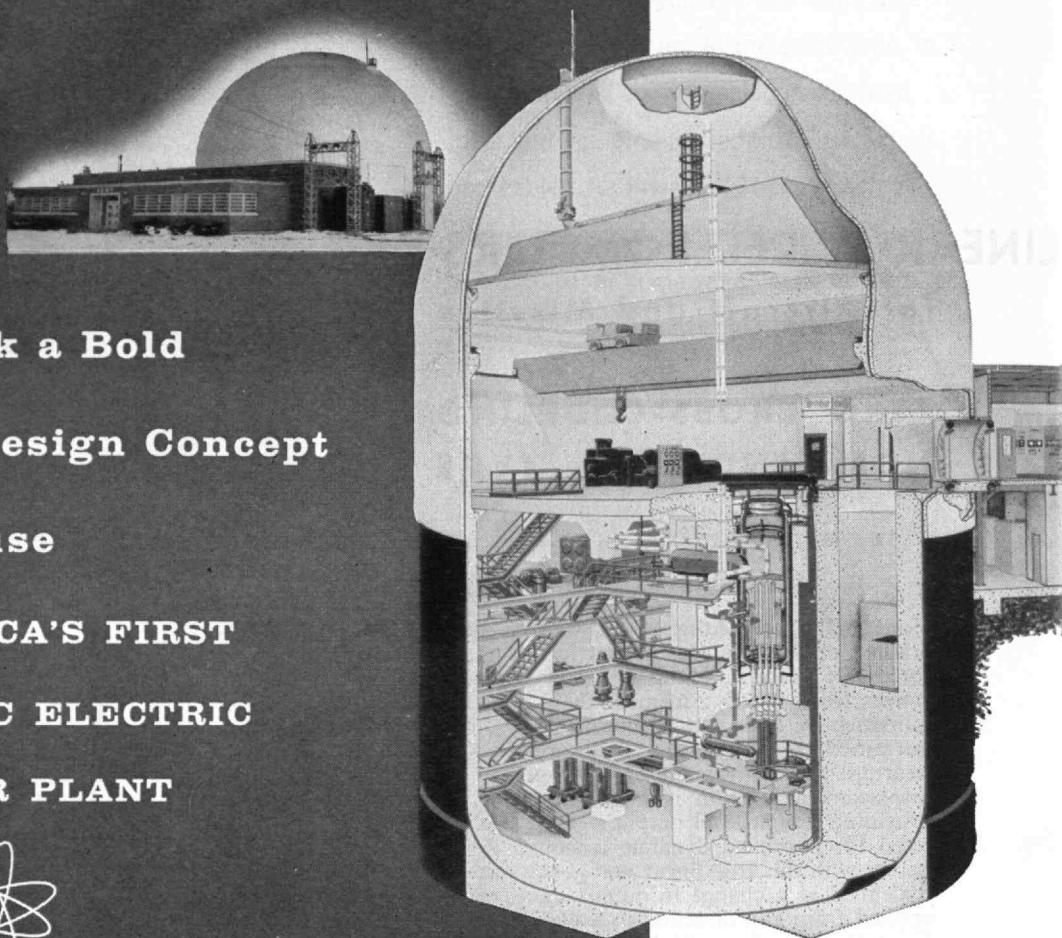
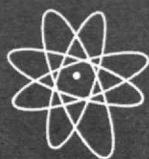
MINNEAPOLIS
Honeywell



B O S T O N D I V I S I O N

Write for Bulletin LA

**It Took a Bold
New Design Concept
to House
AMERICA'S FIRST
ATOMIC ELECTRIC
POWER PLANT**



How do you house an atomic electric power plant? Dig a hole five stories down. Erect a giant ten-story welded steel "containment vessel." Seal it off air-tight, and you have one of the largest pressure vessels man has ever been called on to build.

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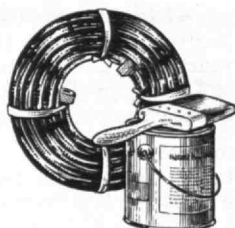
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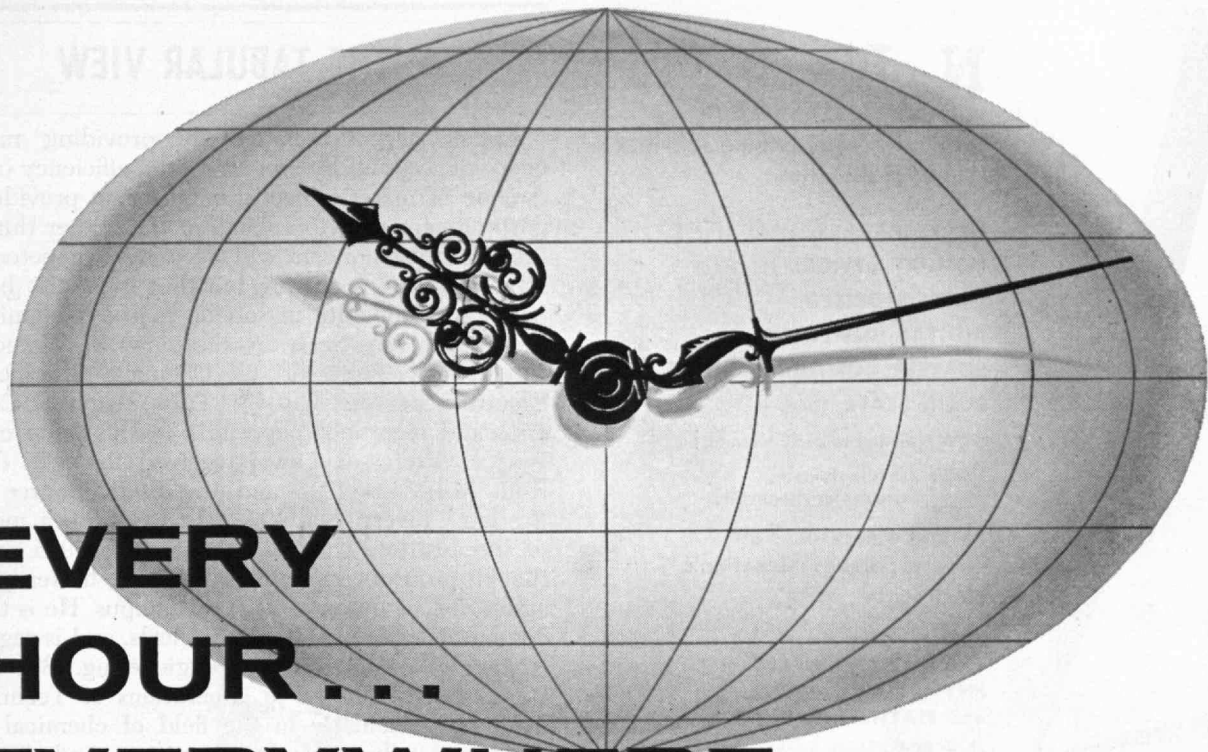


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N. B.

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THE TABULAR VIEW

Engineering Profession.—By providing mastery over science, and by increasing the efficiency of production of material needs, engineering provides opportunity for man to engage in the higher things of life. Future engineers will need the competence to solve technical problems, but they must also be prepared to co-operate in solving man's economic and social problems. Such are the views of WARREN K. LEWIS, '05, Professor of Chemical Engineering, Emeritus, expressed at the Tulsa Regional Conference and recorded (page 351) in this issue of The Review. Professor Lewis received the S.B. degree from M.I.T. in 1905 and the Ph.D. degree from Breslau University in 1908. He has been a member of the Institute's teaching staff since 1905 and although professor emeritus since 1945, he remains an active and vigorous man about campus. He is the recipient of many professional awards, and is regarded as the father of chemical engineering. But "Doc" Lewis is best known to generations of Technology Alumni, particularly in the field of chemical engineering, for his effective, inspiring, and sparkling teaching. Some of his better known anecdotes from his teaching and professional experience have been collected in a booklet, *A Dollar to a Doughnut*.

High School Science.—Because science has become a vital part of the total culture of our times, (Concluded on page 336)



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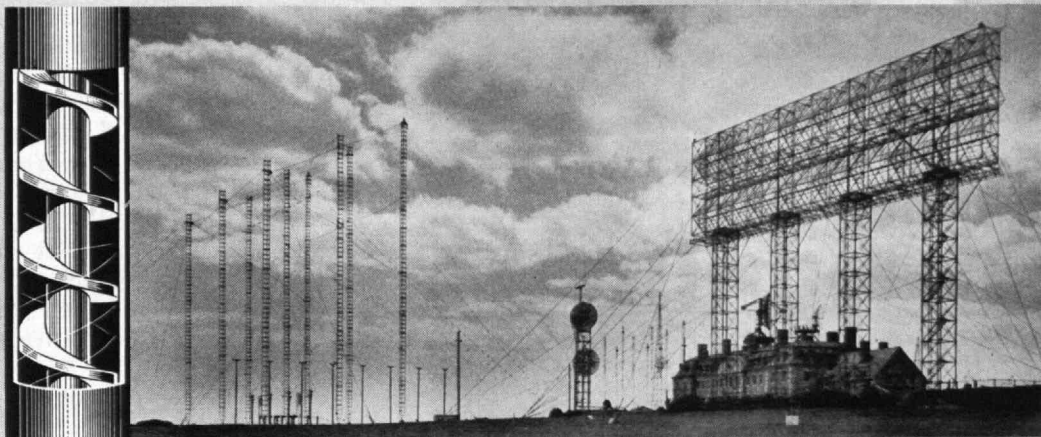
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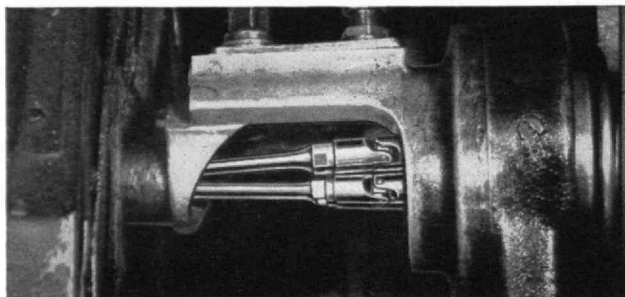
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THE TABULAR VIEW

(Concluded from page 334)

there is good reason for teaching it in secondary schools as an indispensable element of modern liberal education. There is also need to develop a sense of the importance and pride of learning, according to views expressed (page 355) by CHANCELLOR J. A. STRATTON, '23. Dr. Stratton's remarks were originally presented as part of a symposium on Secondary School Education, held in Kresge Auditorium on January 17, under the auspices of the Boston Section of the Institute of Radio Engineers. To the many honors Dr. Stratton has already received, the Medal of Honor of the I.R.E. — that society's highest award — was presented in New York in March for his contributions as teacher, scientist, author, and administrator. Since becoming provost in April, 1949, Dr. Stratton has been primarily concerned with the Institute's educational policies. Appointments as M.I.T. Vice-president in 1951, and Chancellor in 1956, have increased his administrative responsibilities as well.

Automation. — One of the most elusive things we have run across in recent years is a rational and concise definition of automation. GORDON S. BROWN, '31, Professor of Electrical Engineering, regards this form of robotry as "a manifestation of a great revolution in the way man co-operates with nature" in his article in this issue (page 359). Professor Brown received the S.B., S.M., and Sc.D. degrees from M.I.T. in 1931, 1934, and 1938, respectively. He was director of the Servomechanism Laboratory from its formation in 1941 until 1952, during which time he made an enviable name for his professional work in this field. He was named associate head of the Department of Electrical Engineering in 1950, and head of that Department in 1952. Except for introductory remarks not reproduced here, The Review's article represents the text of an address delivered by Professor Brown some months ago before the Royal Canadian Institute.

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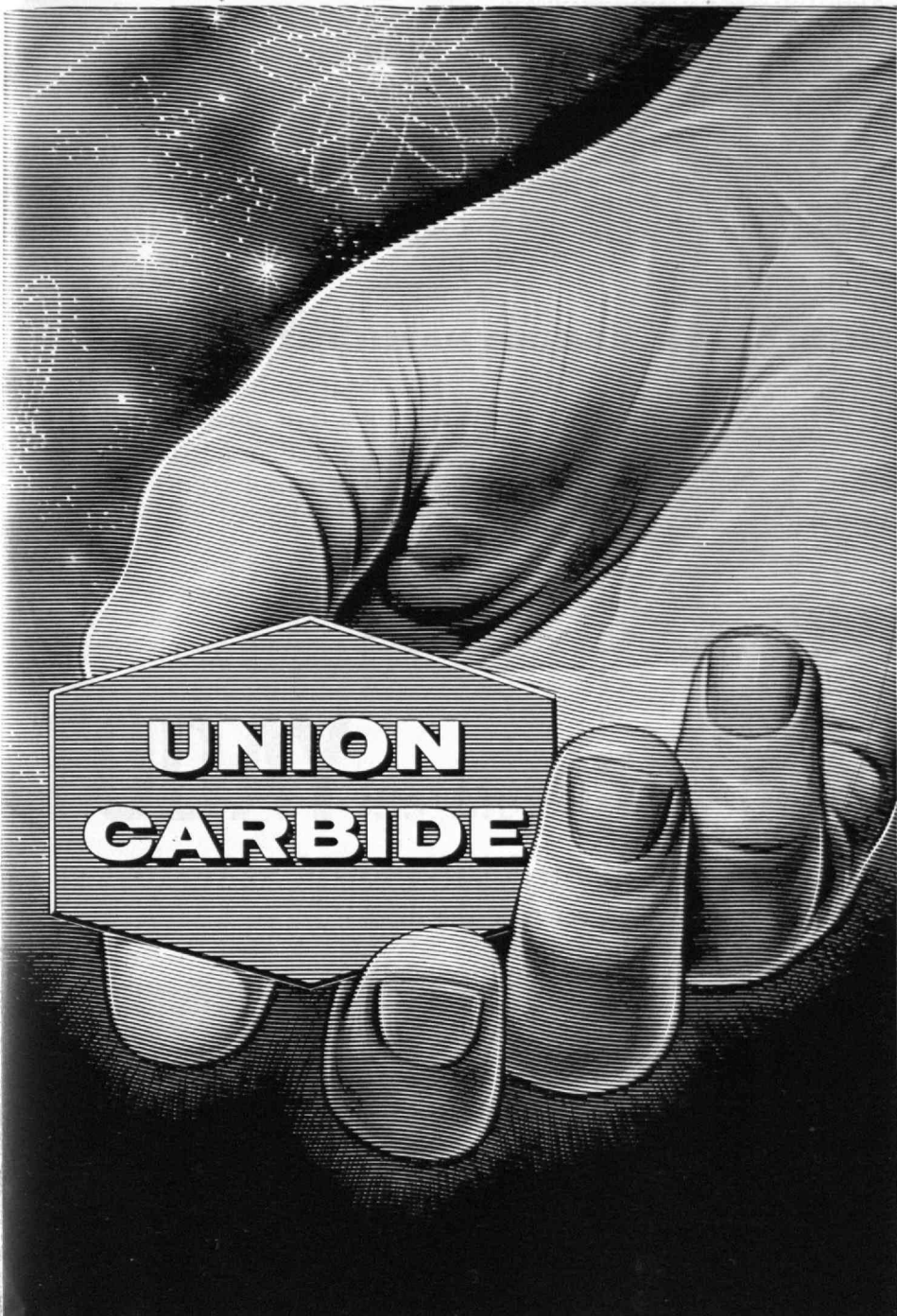
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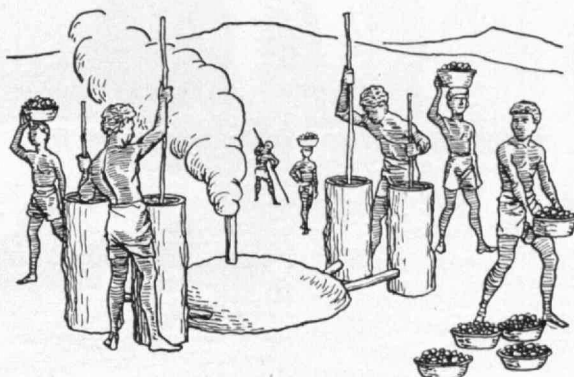
Contact J. J. Holley, Dept. TR-05, The Glenn L. Martin Company, Baltimore 3, Maryland.

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In the 17th CENTURY

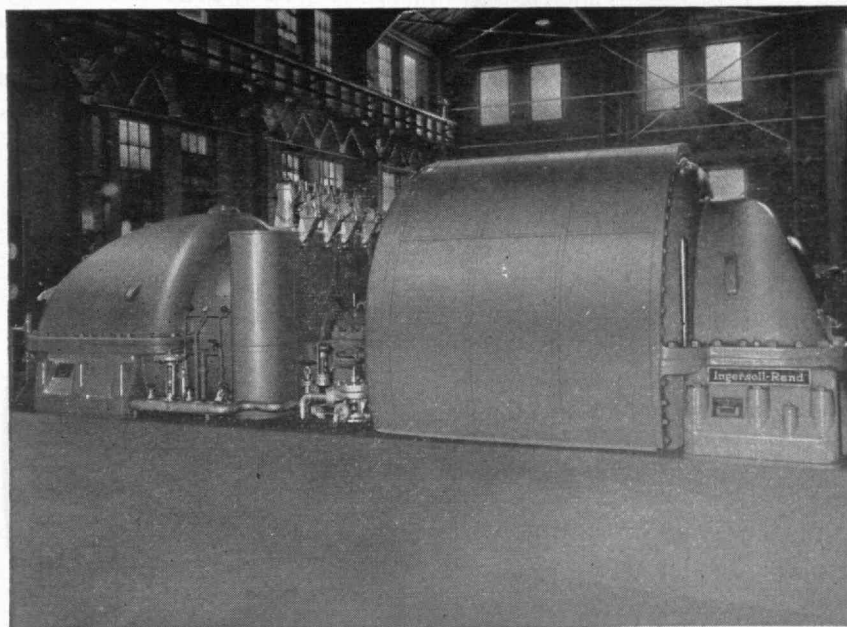
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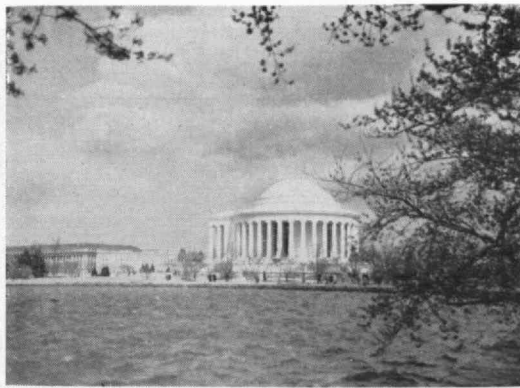
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THE TECHNOLOGY REVIEW



C. E. Patch, '02

Jefferson Memorial, Washington, D.C.

Technology Review

TITLE REGISTERED, U. S. PATENT OFFICE

Edited at the Massachusetts Institute of Technology

VOL. 59, NO. 7

Contents

MAY, 1957

FISH HOUSE AT ROCKPORT, MASS. Front Cover

Photograph by Raymond E. Hanson

QUEBEC ON THE ST. LAWRENCE Frontispiece 342

Photograph by J. Ralph Jackman

FUTURE OF ENGINEERING AS A PROFESSION By Warren K. Lewis 351

Future generations of engineers need the vision and competence to co-operate in the solution of economic and social problems, as well as the ability to solve technical problems of modern society

SCIENCE IN THE SECONDARY SCHOOLS By J. A. Stratton 355

Science has become a vital part of the total culture of our times. In our high schools it should be taught as an indispensable element of modern liberal education

AUTOMATION By Gordon S. Brown 359

Automation is not a second or third industrial revolution, but rather a manifestation of the great intellectual change in the way modern man co-operates with nature

THE TABULAR VIEW 334

Contributors and contributions to this issue

THE TREND OF AFFAIRS 343

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J. Ralph Jackman

Glimpse of Old-World Quebec



The Trend of Affairs

Naval Consultant

■ Laurens Troost, Head of the Department of Naval Architecture and Marine Engineering, recently left Boston for Brazil where he will help to institute a course in naval construction at the University of São Paulo. The São Paulo program, which is being established with the co-operation of the Brazilian Navy, will be the first of its kind in the South American country.

Professor Troost is expected to be succeeded next June at São Paulo by George C. Manning, '20, also a Professor of Naval Architecture at M.I.T., who plans to spend two years helping to develop the new naval construction program at the Brazilian university. The São Paulo course will be open to both civilian and naval students and will be patterned after the one at M.I.T., which is one of only three of its kind in the United States. It is expected that São Paulo will eventually become the chief training center for constructors for the Brazilian Navy, which currently sends a small group of officers to M.I.T. each year for three years of graduate study in Cambridge.

In anticipation of their new naval construction program, the University of São Paulo recently built a ship model towing tank. Professor Troost, their first American consultant, is one of the world's foremost authorities on this kind of facility. He was for many years in charge of the large ship model basin at Wageningen, The Netherlands.

Professor Manning, who expects to succeed Professor Troost at São Paulo next summer, is a graduate of the U. S. Naval Academy and has devoted his professional life to ship design and construction, and to educational programs in naval architecture and marine engineering.

Art Education

■ Four new courses in visual arts are to be offered to science and engineering students at M.I.T. as an antidote to "canned images." Announcement of the new program, effective next fall, was made by Pietro Belluschi, Dean of the School of Architecture and Planning, in which the courses are to be given, and by John E. Burchard, '23, Dean of the School of Humanities and Social Studies, in which students

will be given credit for their work. Two courses in the history of architecture will be given by Albert Bush-Brown, Assistant Professor of Architectural History, and two in visual design by Gyorgy Kepes, Professor of Visual Design, and Robert O. Preusser, lecturer in the Department of Architecture. All four will be Humanities electives.

The program is the outgrowth of a study, supported by the Carnegie Corporation, which was made for M.I.T. by a committee consisting of John P. Coolidge, Director of the Fogg Museum at Harvard University; Robert Iglehart, chairman of the Department of Art at the University of Michigan; Bartlett H. Hayes, Jr., Director of the Addison Gallery of American Art at Phillips Academy, Andover; Charles H. Sawyer, Professor of Art at the University of Michigan; and James J. Sweeney, Director of the Solomon R. Guggenheim Museum in New York.

"Until very recently American educational thinking has tended to disregard the visual arts as a field of universal, practical necessity above the elementary level," the committee said in its final report.

In a foreword to the report, Dean Burchard commented, "A great many young men and women are graduated from our institutions of higher learning visually 'illiterate.' Art and architecture will not flourish in our culture unless there are both talented artists and sensitive customers."

Dean Belluschi pointed out that many of the factories and public buildings of the future will be built by scientists and engineers who are now undergraduates at M.I.T. and that the Institute's duty is to help them develop visual discrimination.

"Culture today is in a very great degree influenced by the canned images that we see — posters, advertising, movies, television . . . students don't have the visual training to be responsive in the best sense," said Professor Kepes.

The visual design courses will include lectures by Professor Kepes and studio sessions in which Professor Preusser, himself an artist, will give leadership to students in painting — not in an attempt to produce artists but to help them experience the problems of dealing with color, form, and relationships.

Professor Bush-Brown's courses in the history of architecture will concentrate on two architectural periods, the Renaissance and the Twentieth Century.



The election of Vannevar Bush, '16, by the M.I.T. Corporation to serve as its chairman was announced on March 22, 1957, by James R. Killian, Jr., '26, President of the Institute. As accepted by Dr. Bush (photo above), the chairmanship involves no administrative responsibilities. He serves as the Corporation's presiding officer and fulfills the functions of a "chairman of the board of trustees."

The President of the Institute continues as chairman of the Corporation Executive Committee and as the Institute's chief executive officer.



The election of Thomas J. Watson, Jr. (shown above), President of International Business Machines Corporation, as a special term member of the Corporation, was also announced on March 22. His membership will be for a term of five years beginning July 1. Mr. Watson, a native of Dayton, Ohio, and a graduate of Brown University, has been associated with I.B.M. since 1937, except for military service during World War II. He was promoted from executive vice-president to president and director of I.B.M. in 1952, and holds numerous important industrial and educational posts.

Faculty Appointments

■ President Killian has recently announced the Faculty appointments of Irving Kaplan and Edward A. Mason, '48, to the Department of Chemical Engineering, Stanislaw Olbert, '53, to the Department of Physics, and David C. Pridmore Brown, '51 to the Department of Mechanical Engineering.

Dr. Kaplan, Visiting Professor of Nuclear Engineering for the spring term, has been senior scientist and head of the Reactor Physics Division, Nuclear Engineering Department, at Brookhaven National Laboratory since 1947. Last term he served as Gordon McKay Visiting Lecturer in Nuclear Engineering at Harvard University. Awarded his A.B., A.M., and Ph.D. at Columbia University, he has, for the past 20 years, worked in the fields of enzyme chemistry, chemistry of the central nervous system, isotope separation, nuclear physics, and reactors.

Dr. Mason, who succeeds Thomas H. Pigford, '48, as Associate Professor of Nuclear Engineering, is a

graduate of the University of Rochester and took his master's degree and doctorate at M.I.T. For two years he was assistant professor and director of the Bangor Station of the School of Chemical Engineering Practice, and for one year assistant professor in the Department. In 1953, Dr. Mason joined the staff of Ionics, Inc., where his work has ranged broadly in the field of ion exchange, including problems of nuclear fuel cycles.

Dr. Olbert, named Assistant Professor of Physics, had been a member of the Division of Sponsored Research staff since 1953, when he received his doctorate at M.I.T. He was graduated from Munich University in Germany and is a theoretical physicist specializing in the field of cosmic rays.

Dr. Pridmore Brown, a member of the Acoustics Laboratory staff since 1954, will become assistant professor of mechanical engineering next July. A graduate of The Principia College, he earned his M.S. and Ph.D. in physics at M.I.T. while serving as research assistant in the Physics Department.

■ The 323d meeting of the Alumni Council, held at the Faculty Club on Monday, March 25, was opened by Theodore T. Miller, '22, President. Attendance at this meeting totaled 142 members and guests.

Between February 23 and March 19, 10 members of the Council or the M.I.T. staff visited eight M.I.T. clubs in the United States and two in foreign countries. On February 23, H. E. Lobdell, '17, Harold Bugbee, '20, Mr. Miller, and Hugh S. Ferguson, '23, visited the M.I.T. Club of Cuba in Havana, and on March 16, Mr. Lobdell also visited the M.I.T. Club of Mexico in Mexico City.

This fall the Second Alumni Officers' Conference will be held at the Institute. The purpose of this meeting is to provide instruction sessions in the various activities in which alumni officers represent the Institute and the Association. The committee appointed to conduct this meeting consists of: William L. Taggart, Jr., '27, chairman; Vincent T. Estabrook, '36, deputy chairman; H. E. Lobdell, '17, Whitworth Ferguson, '22; Henry B. Kane, '24; Gilbert M. Roddy, '31, ex-officio; Donald P. Severance, '38; Bruce F. Kingsbury, 2-44, Executive Secretary of the Educational Council; Joseph E. Conrad, Regional Director of the Alumni Fund; and H. Guyford Stever, Associate Dean of the School of Engineering.

As chairman of the Alumni Fund Board, Avery H. Stanton, '25, reported that 9,856 Alumni had contributed \$422,266 as of March 25; the corresponding figures, a year ago, were 9,036 Alumni who contributed \$364,965. Of 14 regions in which solicitations are completed, 62 per cent of Alumni participated, compared to 40 per cent a year ago.

Dr. Egon E. Kattwinkel, '23, chairman of the Alumni Day Banquet Committee, announced plans for the evening activities of Alumni Day on Monday, June 10, 1957. A social hour will precede a catered dinner in the Rockwell Cage. Following the Alumni Banquet, business will be limited to the induction of a new honorary member and the presentation of class gifts. Immediately thereafter, Arthur Fiedler and the Boston Pops Orchestra will present a program exclusively for Alumni Day guests in the Kresge Auditorium.

Following the business portion of the meeting, Joe Jefferson, Placement Officer, spoke on "Jobs for Engineers," and Hoyt C. Hottel, '24, Professor of Fuel Engineering, and chairman of the Committee on Solar Energy, spoke on "Solar Heating."

Mr. Jefferson opened his remarks by commenting on the activity of the Institute's Placement Bureau. In 1950-1951, 193 companies conducted 3,741 interviews with M.I.T. students, whereas it is estimated that, for the current year, 500 companies will conduct 8,000 interviews with graduate and undergraduate students. Most company representatives report that M.I.T. students show much greater interest in opportunities to grow in their profession and to assume responsibility, and the chance to do graduate work while working, than in bidding up starting salaries. Currently, median salary offers are \$460 per month for those with an S.B. degree, \$550 for those with an S.M., and \$725 for those with an Sc.D.

On the Horizon

June 10, 1957 — 23d Alumni Day, 1957, M.I.T. Campus in Cambridge.

September 6-7, 1957 — 2d Alumni Officers' Conference, M.I.T. Campus in Cambridge.

December 7, 1957 — 11th M.I.T. Alumni Regional Conference, Pittsburgh, Pa.

Alumni placement is also active at the Institute, with many more positions available than there are men to fill them. For example, last year (1955-1956), the Alumni Placement Office received notice of 4,763 job opportunities, but only 722 men were available and 163 placements were made.

The Placement Office, said Mr. Jefferson, is aiming to improve its service by establishing better interviewing facilities; offering improved guidance to students; establishing more effective contacts with small and medium-size concerns; providing an increasing amount of information on placement to students, Alumni, industry, and government; and aiding government and industry to provide better opportunities for summer employment of technical personnel.

Professor Hottel opened his remarks by reminding members of the Council that the M.I.T. program on solar energy research was initiated nearly 20 years ago through the foresight of Godfrey L. Cabot, '81. Since then, the departments that have become involved in solar programs have included: Architecture, Building and Engineering Construction, Chemical Engineering, Chemistry, Civil Engineering, Electrical Engineering, and Metallurgy. From the start M.I.T.'s program has turned toward solar heating. The use of solar energy for power is difficult to achieve, and the use of excellent gas, liquid and solid fuels for domestic use is a very inefficient utilization of high-temperature fuels. The most logical use for solar energy would be for domestic heating.

M.I.T. has built three solar houses. A fourth one is now under construction in Lexington. This new one will have a floor area of 1,450 square feet, and the cost of heating it by conventional means would be approximately \$200 per year.

Professor Hottel compared the equivalent income of flat plate solar collectors if used in Florida for year-round purposes, in New England for year-round purposes, including domestic hot-water heating, and in New England for winter heating only. He pointed out that it was not economically sound in New England to utilize solar heating, but future reductions in the cost of solar units would make solar heating increasingly worth while in the South.

He stated the M.I.T. point of view that one cannot afford to store solar heat for more than a very few days — and preferably not much more than 24 hours. The new solar house in Lexington will utilize 600 square feet of flat plate collector — thereby providing 80 per cent of the domestic load for space heat in the house and for hot-water heating. The storage tank in the basement will hold 1,500 gallons.

Class Reunions in 1957

Class	Date	Place	Reunion Chairman or Class Secretary
1891	June 8	The Country Club, Brookline	Harry H. Young, 290 Main Street, Cambridge 42
1897	June	Boston — Tentative luncheon plans	John P. Ilsley, 26 Columbine Road, Milton 87
1900	June 11-13	The Pines, Cotuit	Elbert G. Allen, 11 Richfield Road, West Newton 65
1902	June 7-9	Wentworth-by-the-Sea, Portsmouth, N. H.	Burton G. Philbrick, 18 Ocean Avenue, Salem
1907	June 7-9	50th Reunion Oyster Harbors Club, Osterville	Bryant Nichols, 23 Leland Road, Whitinsville
1908	June 7-9	Melrose Inn, Harwich Port	H. Leston Carter, 14 Roslyn Road, Waban 68
1912	June 7-9	Snow Inn, Harwich Port	Albion R. Davis, 11 Vane Street, Wellesley
1916	June 11-12	Chatham Bars Inn, Chatham	Harold F. Dodge, Bell Telephone Laboratories, 463 West Street, New York 14, N. Y.
1917	June 7-9	Wentworth-by-the-Sea, Portsmouth, N. H.	Stanley C. Dunning, 21 Washington Avenue, Cambridge 40
1922	June 7-9	Sheldon House, Pine Orchard, Conn.	Dale D. Spoor, Apt. 12D, 2440 N. Lakeview Avenue, Chicago, Ill.
1927	June 7-9	Oyster Harbors Club, Osterville	Parke D. Appel, 28 Winthrop Road, Belmont 78
1932	June 7-9	25th Reunion Baker House, M.I.T., Cambridge	J. Robert Bonnar, 26 Macy Avenue, White Plains, N. Y. Rolf Eliassen, Room 1-138, M.I.T., Cambridge
1937	June 7-9	The Belmont, West Harwich	Philip H. Peters, 14 Cushing Road, Wellesley Hills
1942	June 7-9	Chatham Bars Inn., Chatham	George J. Schwartz, Doelcam Corporation, 1400 Soldiers Field Road, Boston
1947	June 8-9	Hotel Curtis, Lenox	Martin M. Phillips, 41 Avalon Road, Waban 68
1952	June 8-9	Mayflower Hotel, Plymouth	Nicholas Melissas, Building 32, M.I.T., Cambridge

Individuals Noteworthy

■ Featured in the spring news were 29 promotions, elections, or appointments for Technology Alumni, as cited below:

Raymond B. Blakney, '16, as President of Orlinda Childs Pierce College for Girls, Athens, Greece . . .

Robert C. Erb, '17, as a Director of American Mutual Liability Insurance Company . . .

Lloyd R. Sorenson, '19, *Norborne L. Rawlings*, '21, and *Donald A. Holden*, '31, respectively, as Vice-president and General Manager, Executive Vice-president, and Production Manager of Newport News Shipbuilding and Drydock Company . . .

Stewart P. Coleman, '21, as Chairman of the Board of Trustees of the National Industrial Conference Board . . . *Robert D. Stuart, Jr.*, '22, as President of Blackstone Valley Gas and Electric Company . . .

Harvey L. Williams, '22, as President of Philco International Corporation . . . *Edwin H. Schmitz*, '23, as Vice-president of Sales, Wrap-King Corporation, Holyoke, Mass. . . .

Paul J. Cardinal, '24, as a member of the Board of Governors of the National Vitamin Foundation, Inc. . . . *Walter H. Kennett*, '24, as Civil Defense Director for the State of Maine . . .

Alden F. Butler, '26, as Manager of Plant, American Bosch Arma Corporation, Columbus, Miss. . . . *John W. Church*, '29, as Eastern Manufacturing Manager of Building Products Ltd., Montreal . . .

Philetus H. Holt, '30, and *Charles E. Starr, Jr.*, '31, as Managers, respectively, of the Process Licensing Staff, and of Technical and Public Information, Esso Research and Engineering Company . . .

Sven G. Lawson, '30, as Operations Manager for photoflash and incandescent lamp operations, Syl-
vania Electric Products, Inc. . . . *Ira J. Bach*, '32, as the first Commissioner of City Planning for Chicago . . .

John W. Leslie, '32, as Chief of the New England Division, U.S. Corps of Engineers . . . *Thomas B. Rhines*, '32, and *Eugene Rohman*, '33, respectively, as Chief Engineer, and Manager of Operations Accounting Services, Hamilton Standard, Division of United Aircraft Corporation . . .

William M. Murray, '33, as Secretary-Treasurer of the Society for Experimental Stress Analysis . . . *George R. Vila*, '33, as Vice-president of United States Rubber Company : . . *Michael A. Kuryla*, '36, as Vice-president of Cerro de Pasco Petroleum Corporation, Lima, Peru . . . *Ralph J. Slutz*, '38, as Vice-chairman of the 71-member Committee on Technical Questions for the International Radio Conference scheduled to meet in 1959 at Geneva, Switzerland . . .

Charles T. Booth, '40, as Commanding Officer of the new aircraft carrier U.S.S. *Ranger*, by reassignment from his previous post as Assistant Chief of Staff for Operations to *Admiral Felix B. Stump*, '24, Commander-in-Chief of the U.S. Pacific Fleet . . .

Edward A. Beaupre, '41, as Contract Manager and Assistant to the President, Electronics Corporation of America . . . *Davis R. Dewey*, '41, as President of Baird-Atomic, Inc. . . .

Harry E. Knox, Jr., '42, as General Works Manager of Acheson Dispersed Pigments Company . . . *Thomas F. Malone*, '46, as Secretary of the American Meteorological Society.

■ Special honors coming recently to Technology Alumni and members of the Institute's Faculty included:

To *Richard H. Ranger*, '11, an "Oscar" for the development of a synchronous recording and reproducing system for quarter-inch magnetic tape, by the Academy of Motion Picture Arts and Sciences . . . to *William C. Foster*, '18, an honorary doctor of laws, by Syracuse University . . .

To *Paul Gordon*, '39, the 1957 Mathewson Gold Medal, by the American Institute of Mining, Metallurgical, and Petroleum Engineers . . . to *Grace D. Keenan*, '41, "Ordinary Membership," its highest

grade, by the Royal Society of Health of Great Britain . . .

To *Eric A. Kolm*, '53, the first Du Pont Nondestructive Testing Award, by the Society for Nondestructive Testing . . .

To *H. Guyford Stever*, Associate Dean of M.I.T.'s School of Engineering, and *Raymond L. Bisplinghoff*, Professor of Aeronautical Engineering, election as Fellows, by the Institute of the Aeronautical Sciences . . .

To *Carl W. Wagner*, M.I.T. Professor of Metallurgy, the Willis Rodney Whitney ['90] Award, by the National Association of Corrosion Engineers.

Twenty-five Years Ago This Month . . .

■ In The Review for May, 1932, there appeared two major articles relating to notable Institute research programs then in process. One of these, entitled "Working Mathematics by Machinery," was contributed by *Harold L. Hazen*, '24, Assistant Professor of Electrical Engineering, who had recently presented his doctoral thesis on "The Extension of Electrical Engineering Analysis through the Reduction of Computational Limitations by Mechanical Methods." His article dealt with the historical background leading up to the mapping of a research program at M.I.T. for supplying labor-saving analyzing devices.

Two machines, the *product integrator* (for solving second order, differential equations) and the *photoelectric integrator* (giving an approach to the integral equation and to certain processes of statistical analysis) already had been built. Now there was a third machine, the *differential analyzer*, more complicated and ingenious than its pair of forerunners, also dealing with the differential equation, which provided solutions in the form of plotted curves for specified, boundary conditions. Professor *V. Bush*, '16, who developed the analyzer, stated that it was readily possible when plates had been made and a schematic diagram giving schedules and connections prepared, to set up the machine for a given problem in a few hours.

The second article, entitled "Into the Foothills of the Atmosphere," was contributed by *Daniel C. Sayre*, '23,* Assistant Professor in the Department of Aeronautical Engineering, who, since the previous November had been conducting morning flights from East Boston Airport in a 120-horsepower Cessna monoplane to make "a series of daily upper air soundings to determine the characteristics of North American air masses over Boston with the ultimate purpose of further extending the application of air mass and frontal analysis to American weather forecasting."

Throughout the severe New England winter 90 per cent of the planned flights had been accomplished despite temperatures at the plane's 16,500-foot ceiling ranging as low as -35 degrees F., concerning which, wrote practical-minded Professor Sayre: "This sounds rather formidable, but fortunately, it was a very dry cold and the plane, though unheated, is a

*Deceased October 19, 1956



Shown as they appeared in the May, 1932, issue of *The Technology Review*, *Samuel H. Caldwell*, '25 (left), and *Vannevar Bush*, '16, examine results of a mathematical equation worked out by the differential analyzer. This analogue machine, designed by Dr. Bush to solve differential equations, was the first of the modern, large-scale computers.

closed one. Our early ideas of electrically-heated or fur-lined flying suits have consequently given way to a pair of woolen socks and ordinary overcoat, a pair of good mittens and a stocking cap. It is much better to be healthfully cold upstairs than to sweat around before and after a flight, and to be cramped up in a small place with an unnecessary amount of clothing."

. . . on May 6, 1932, *Arthur B. Lamb*, '02, President-elect of the American Chemical Society, made the first presentation of the Richards Medal, given by the Society's Northeastern Section, to *Arthur Amos Noyes*, '86, who established America's first research laboratory of physical chemistry at M.I.T. of which he was Acting President in 1907-1909.

. . . On May 19 the Faculty unanimously voted "to continue the present training in military science," the question having been raised by a petition made by a group of students to ask that "other studies be substituted."

Professional Summer Courses

■ Thirty-three special professional programs, ranging from Missile Aerodynamics to the Psychology of Man-Machine Systems, will be offered at M.I.T. during the 1957 Summer Session, according to James M. Austin, '41, Summer Session Director.

"More than 2,000 scientists, engineers, executives, and other professional people are expected to attend the series of short intensive programs. The programs will be of the same general type as those which have been so well received by industry and government in past summers at M.I.T. and which over the last seven years have brought national recognition to the M.I.T. Summer Session," said Dr. Austin.

Among the programs of intense current scientific interest scheduled for the coming summer at M.I.T. are the following:

Missile Aerodynamics — a two-week program surveying those special aerodynamic problems of missile design which are attracting increased attention as the aeronautical and electronics industries expand their activities into the missile field.

Nuclear Reactor Technology — a two-week program intended as an intensive introduction to the nuclear engineering fundamentals. The course will cover such topics as research and test reactors, nuclear power plants, processing of nuclear fuels, thermo-nuclear reactors, and the economics of nuclear power.

The Psychology of Man-Machine Systems — a two-week program designed to examine some of the psychological facts and principles involved in the interactions of men with machines. The course will survey the human-factors problems in communications systems, radar and sonar systems, simple manual control systems, and others.

New Advances in Noise Reduction — a one-week program covering ways of achieving noise reduction through such devices as structures, walls, and mufflers. Case histories will be used to show how noise reduction was accomplished in office buildings, factories, jet engines, and elsewhere.

Extensive work in various laboratories including the use of advanced facilities at the Institute will be a feature of most of the programs. Members of the M.I.T. Faculty will supervise all of the programs, and visiting lecturers from other schools and from industry will also participate in many. Members of these programs may live in M.I.T. dormitories and will have available all of the cultural and recreational facilities of the M.I.T. Campus. Additional special events open to members of all programs are planned throughout the summer season from Tuesday, June 11, through Friday, September 13.

Further information about summer activities at the Institute is available from the Summer Session Office, Room 7-103, M.I.T., Cambridge 39.

Dr. Austin became director of the Summer Session last November. He succeeds Ernest H. Huntress, '20, who was director of the Summer Session from 1952 to November, 1956, when he asked to be relieved of this post in order to devote full time to growing responsibilities as Secretary of the Graduate School. Professor Austin received the B.A. and M.A. degrees from

the University of New Zealand in 1935 and 1936, and D.Sc. from M.I.T. in 1941. He has been a member of the M.I.T. staff since 1940, when he came to the Institute as a research assistant in aeronautical engineering. He was appointed assistant professor of meteorology in 1941 and associate professor in 1944, and was civilian consultant to the Army Air Force Weather Service during World War II.

Visiting Committee Report on Student Activity

■ The Visiting Committee on Student Activity met on March 6, 1956, for an all-day meeting in the Rectory of Trinity Church, Boston. Four members of the Committee were present: Messrs. Du Pont, Salmon, Stewart, and the chairman.* Also present were E. Francis Bowditch, Dean of Students, and six members of his staff, including William Speer, Associate Dean, who is in charge of co-ordinating counseling; Miss Ruth L. Bean, Assistant Dean of Students; Frederick G. Fassett, Jr., Associate Dean of Students in charge of dormitories and fraternities; Richard L. Balch, Director of Athletics; Robert J. Holden, General Secretary of the Technology Christian Association; and Robert S. Hartman, Associate Professor of Philosophy from Ohio State, and consultant to the M.I.T. Dean of Students. Thomas P. Pitre, Associate Dean of Students, more usually known as Director of Student Aid, was unable to be present.

The purpose of the meeting was largely the indoctrination of the members of the Committee as to the purposes, plans, and needs of those who are in charge of such student activities as are commonly called noncurricular.

Dean Bowditch impressed upon the Committee the fact that the more highly skilled a man is in science, the more he needs to be trained in those other activities of the mind and body which, strangely enough, come under the head of non-curricular education. If men are not to leave M.I.T. as brilliant scientists who know not how to relax their bodies or feed their spirits, then the life of the dormitory, athletic field, auditorium and chapel must be as carefully developed and cultivated as the life of the classroom and laboratory.

Each member of the staff present spoke about his own concern and responsibility. The Committee was unanimously impressed by the quality of all the staff members who spoke, and has no desire to recommend radical changes in their policies or methods. They are working in a field that might be described as fluid; sometimes they are working virtually in the dark, without tradition or precedent to go on. The work of Dean Speer in the use of the Chapel is a case in point, and a similar situation exists in the use of the Auditorium. The Committee feels that these vital areas of human relationship and spiritual development are in capable hands, that the men responsible for them know what they are doing, and are moving forward carefully but steadily, and that they

* Members of this Committee for 1955-1956 were: Theodore P. Ferris, chairman, William L. Stewart, Jr., '23, Chenery Salmon, '26, David A. Shepard, '26, Dwight C. Arnold, '27, Pierre S. du Pont, 3d, '33, Robert H. Levis, '40, and Horace S. Ford.

are aware of the difficulties which are present as well as the opportunities.

At the beginning of the meeting, the Committee discussed at some length the tragic death of Thomas L. Clark, '59, which occurred during a fraternity initiation. This discussion necessarily involved the whole subject of the role that fraternities should play in an institution like M.I.T. The Committee heard with great interest and satisfaction the decision of the fraternities at M.I.T. that "no initiation or pledge training activity shall constitute any physical or emotional hazard to the individual," making specific reference to the long walk, the quest, physical violence, paddling, and the mock initiation. The decision was made by the students themselves after long and serious discussion of all the factors involved. The Committee was proud to know that this action of the fraternities of M.I.T. might well bring to pass similar reforms in fraternities all over the country.

A sub-committee was appointed to review, in the fall of 1956, the action taken up to date and to assure the Corporation that everything that could be done has been done. To this committee Chenery Salmon, '26, and Dwight C. Arnold, '27, were appointed.

Whatever may be lacking, certainly organization of Student Activity at M.I.T. is one thing not lacking. There are committees for every conceivable purpose, upon which Faculty, students, and members of the Administration all serve, and which apparently meet regularly and frequently. This is good and means that the atmosphere is alive, not dead. The important matter is to know when the salutary number has been exceeded.

The Committee's report was received by the M.I.T. Corporation at its meeting on October 1, and was made available for publication in *The Review* on October 25, 1956.

Technology Athletics

■ The goal of the athletic program at M.I.T. — as seems appropriate for an educational institution — is the development of the physical well-being of students. Such an athletic program does not lend itself to achieving the largest or greatest number of headlines. But it does make its proper contribution to the well-rounded individual; it makes possible participation by a large fraction of the student body in intramural sports. Frequently, too, it brings to the fore some outstanding teams or individuals.

That M.I.T. athletes have had a busy season may be gleaned from the following reports prepared for *The Review* by: Gordon H. Smith, Varsity Swimming Coach; Charles Batterman, Freshman Swimming Coach; Robert H. Mattson, Rifle Team Coach; James A. Maloney, Coach of Wrestling; John H. Burke, Jr., Varsity Basketball Coach; Robert M. Whitelaw, Freshman Basketball Coach; and Benjamin R. Martin, Varsity Hockey Coach.

Swimming

The 1956-1957 Varsity Swimming Team made one of the best showings in recent years. The unusually fine team spirit could be attributed to Captain Harry B. Duane, 3d, '57, who, being a married man with three

children and with his military service behind him, was more mature and readily assumed the leadership which a younger man might have found more difficult to do. Fine spirit and determination continued in spite of three losses in a row to Trinity, Brown, and Springfield College. Very close meets with Trinity and Springfield were contributing factors.

The dual season closed with all men doing their utmost to break as many (25-yard pool) Institute records as they could while competing against Worcester Polytechnic Institute. The team was rewarded with three records broken, two records established, and a one-sided score of 66-16.

The season ended with six wins, five losses, and one tie. M.I.T.'s point score for the season was 557 as against 469 for our opponents. Another outstanding fact is that during the season M.I.T. records (25-yard pool) were broken in the 440-yard free style by Murray R. Kohlman, '58; in the 200-yard breast stroke by Lynn A. Jacobson, '59; in the dives by E. David Bryson, '57; in the 100-yard butterfly by Edward H. Getchell, '59; and in the 400-yard medley relay by Alfred G. Hortmann, '58, Jacobson, Getchell, and Duane.

The Freshman Swimming Team was an unusually small team from the start. The fortunate addition of three boys later brought a record-breaker in the 100-yard free style won by John P. Windle, '60. Charles W. Rook, Jr., '60, was a most versatile swimmer and high scorer, and our most vocal rooster and outstanding sprinter was Robert P. Barrett, '60.

The sincerity and spirit of this team was most gratifying. They were a team with no individual stars. During the period when we lost four meets, it was rare when a boy missed practice. There was continual improvement and at year's end, gave evidence that next year's varsity would be greatly strengthened.

The Freshman Team finished with a 4-4 record, beating Dean Junior College, Tufts, Gardner High, and Moses Brown; losing to Exeter, St. George's, Andover, and Brown. During our final meet, Captain E. Gerald Hurst, '60, summed up the accomplishments of the Freshman Swimming Team with the following words:

"It's an exciting experience for me, seeing records broken and everyone on the team so excited and doing so well. It makes me feel proud."

Rifle

The M.I.T. Varsity Rifle Team's season drew to a close in April. The team fired, and remained undefeated in two leagues: the New England College Rifle League and the Greater Boston College Rifle League. Firing in the N.E.C.R.L. was completed on March 9, 1957, with M.I.T. placing first in the shoot-off, competing against the top three of 18 member teams (Norwich University, the United States Coast Guard Academy, and Providence College.)

The high point of the season was the sectional National Rifle Association collegiate match held at Boston University on March 16, 1957. Approximately 10 colleges from the New England area were represented.

The M.I.T. team suffered only three losses for the entire season and they were non-league matches.

The M.I.T. squad should again be very potent next year with nearly all members of this year's group returning. Greatly missed will be: the Captain, Harry M. Johnson, '57; the Manager, George E. Bohlig, '57; and reliable Robert H. Borgwardt, '57. Improved returning sophomores and new ex-freshman members should balance the squad quite nicely next year.

Wrestling

A review of the M.I.T. wrestling matches in the New England Intercollegiate Wrestling Association during the 1957 season discloses that M.I.T.'s Wrestling Team fought valiantly in all bouts. In terms of team scores, however, the M.I.T. team was nosed out by the opponents' teams repetitiously by losing single deciding bouts in matches with Wesleyan, Tufts, University of Massachusetts, and Dartmouth.

On the victorious side of the ledger, M.I.T. easily won over the Boston University team at the Rockwell Cage. Then, in an evenly matched meet with the United States Coast Guard Academy at Groton, Conn., Tech nosed out the Cadets. In competing with wrestlers out of our New England League, at Albany, N.Y., M.I.T.'s matmen beat the Albany State Teachers College team.

M.I.T. entered full freshman and varsity teams in the New England Intercollegiate Championships held at Williams College on March 8 and 9. M.I.T.'s hour of triumph occurred when Captain Harris Hyman, '57, vanquished Henry Bianowicz, Springfield College's 147-pound defending champion, in the most exciting bout of the tournament. After initiating a furious charge, in the first moment of the bout, Hyman carried the attack throughout the encounter, causing the defending champion to backpedal, quickly leading to his rout and defeat. By the vote of the coaches and officials, this coruscating performance resulted in Hyman being awarded the Coaches' Trophy for the Outstanding Wrestler of the Tournament. Other M.I.T. winners included: Anthony J. Vertin, '57, the 1956 Captain, fourth place in the 177-pound class; and among the freshmen, Joseph A. Patalive, '60, won second in the 157-pound class, and Stephen P. Gill, '60, took fourth place in the 130-pound class.

Basketball

Despite the loss of record-breaking Dimitry Vergun, '60, the promising varsity basketball squad posted a 7-9 record and caused near heart attacks for Coach Burke and M.I.T. fans. For instance, M.I.T. had three overtime contests and lost all; had five games decided by two points or less; actually outscored the opponents by a total of 20 points, although losing two more games than were won.

The boys who carried the main responsibility this season were: Captain McClaran Jordan, '58, Robert J. Polutchko, '59, Leroy A. Cooper, '59, Murray Muraskin, '57, Martin I. Goldstein, '57, David J. Rachofsky, '58, and Paul Z. Larson, '58.

Dennis J. McGinty, '59, Samuel Wilensky, '59, and Walter J. Humann, '59, made up the relief crew.

Polutchko stood out for his strong rebounding, timely scoring, and his intense desire for Tech to win. We shall miss him the first half, next season, since he

will be out of school a term on his co-operative program.

Jordan, our captain, was a terrific assist man. As the season progressed, he gained more confidence and shot more often, increasing the team's output.

Cooper really came along and will be an outstanding M.I.T. player. He has a good jump shot, and, for his size, is a tough rebounder.

Muraskin showed as fine a set shot as seen in New England this season. His scoring will be badly missed. He was selected for the Greater Boston All-Star squad in the annual Seniors' Hall of Fame game.

Goldstein worked up from eighth man to the starting five, and never missed a day of practice. He is fine on the "give-and-go" offense and a surprisingly strong rebounder.

Rachofsky may be the most improved player on the squad. His best game is on the boards and he may be starting next year. Larson had knee trouble, and, in addition, broke a foot bone, yet he came back at season's end and was a steady influence. McGinty, Wilensky, and Humann are sophomores who will improve as they gain experience.

The season was a success, with no regrets left on the basketball floors. It is interesting to note that four players (Jordan, Wilensky, Muraskin, and Larson) have scholastic averages above 4.0.

The freshman basketball record — eight victories and three defeats — stamped the team as one of the most successful court squads to represent M.I.T. in years. The outstanding performance of Co-captains Herman N. Burton, '60, and Richard C. Bradt, '60, will brighten the outlook for the future varsities. Essentially lacking in height, the team used its natural talents and desire to win, and provided M.I.T. fans with many thrills. One-point victories over Trinity and Harvard, in overtime, high-lighted the season's play.

Hockey

The hockey season just concluded is noteworthy from the standpoint of consistency — the only fault being that the consistency was in the losing column of 13 games.

Prospects at the beginning were roseate since we had a promising freshman group coming up, plus a goodly group of returning lettermen. As the season progressed, it became apparent that we badly needed the inspiration furnished in previous seasons by Theodore R. Madden, '49, Donald C. Lea, '50, John C. Kiley, '54, Joseph P. Bova, '54, Harold C. Wells, Jr., '55, and John L. Sullivan, '56. These players had each carried the team as they succeeded each other.

The unseasonable winter furnished further difficulties by interrupting the continuity of practice. This difficulty pointed up the need for a roof over the rink.

The courage of the squad in staying with the sport and playing each game to its utmost was unique and the improvement in substitute goalie Richard R. Burgie, '58, a bespectacled junior who had never played hockey before, was noteworthy. Also commendable was the spirited performance of Henry J. Durivage, '57, who gave the utmost to each contest. Durivage is married and has a family, and, in addition, meets the scholastic demands of a senior schedule.



Ward Allan Howe

Engineering achievement creates economic, social, political, and legal problems as well as problems in human relations. The engineer is in a vulnerable position, therefore, when he limits his concern to technical problems and refuses to recognize the human problems his work brings into being.

The Future of Engineering as a Profession

Oncoming generations of engineers need the vision and competence to co-operate in the solution of economic and social problems as well as the ability to solve technical problems of modern society

by WARREN K. LEWIS

ENGINEERING achievement has a long history. The temples and palaces, the pyramids and hanging gardens of Egypt and Mesopotamia go back 5,000 years. The architectural masterpieces of Greece and the roads and aqueducts of Rome go back over 2,000. The comparable structures of the Middle Ages are equally impressive. What has modern engineering to offer beyond the contributions of the ancient art?

This question is all the more impressive when we realize that such industries as leather, textiles, and ceramics far antedate our oldest historical records, while metallurgy, lime and cement, sugar, fermentation, glass, pigments and paints, paper, soap, and even gunpowder, although of more recent origin, all long preceded the modern developments which we describe as the industrial revolution, and all still retain in surprisingly high degree their original character. The men who created these activities were clearly outstanding in competence. Is not the engineer of today merely treading in their footsteps and carrying on their traditions?

It was almost exactly 200 years ago that a young Scotsman, James Watt, scientific instrument maker

for the University of Glasgow, was given the task of reconditioning a Newcomen engine. Shocked by its inordinate consumption of fuel, he tried to improve it, but got nowhere. Then James Watt did something new under the sun: he went into the laboratory and made an extensive experimental study of the properties of steam to get the knowledge to enable him to solve his problem. In doing this, he, for the first time (except, perhaps, for Archimedes), introduced the method and the knowledge of science into the solution of a practical problem. Out of his work there developed directly the modern steam engine. But what is far more important, the method which he introduced and demonstrated has been adopted in every area of technical activity. Because of Watt, engineering became a profession, requiring intellectual discipline of a high order to furnish the basis for the necessary mastery of science and of the scientific method. The modern engineer is the disciple of Watt.

The thing that differentiates Watt from his fore-runners is the fact that the latter were craftsmen. They possessed a high level of intelligence and skill,

the thing that we nowadays call "know-how." However, this knowledge was based on empiricism and experience and did not include mastery of a general method of solving new problems and creating new developments. Progress had to come by the relatively fortuitous discoveries made by able individuals, rather than as a result of a planned program of study and action.

Modern engineering, engineering based on the new method of Watt, has transformed civilization. It has created a new era in human history. One is tempted to think that its product is the gadget, the telephone and television, the mass spectrograph and the electronic computer, the jet airplane and the hydrogen bomb. On the contrary, these things are incidental and indeed perhaps unfortunate and undesirable accompaniments of the scientific method. The real and truly significant product of modern engineering is the increased efficiency of human effort in the production of the material things which men must have to live. This increase in human efficiency has resulted in the release of man from drudgery and the creation of leisure on a scale never before imagined.

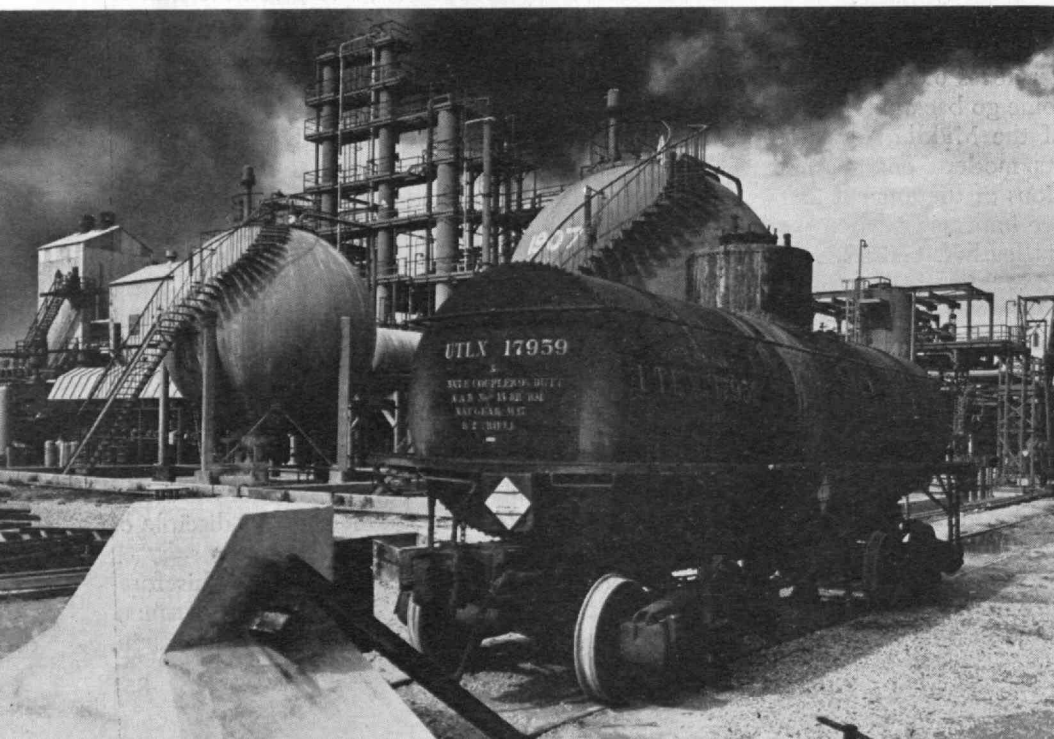
It is almost impossible for the individual to grasp the extent of engineering achievement in this regard. I took an industrial job in New Hampshire almost 50 years ago, in a plant where the work week was 78 hours. Today it is 40 hours. Yet, despite that fact, the standard of living of the worker has gone up between two- and threefold. As you know full well, this is no isolated occurrence, but is representative of the transformation of the industrial situation in this country in the past half century.

A century ago, less than one child in 20 in this country ever entered high school or its equivalent. The reason was not that the parents failed to appreciate the importance of education. They appreciated it far more than they do today because the economic handicap resulting from its lack was obvious and inescapable. The trouble was that the productivity of the economy was too low to enable family and com-

munity to keep the children in school. Children had to go to work to help earn the living for the family and themselves. Today, 85 per cent of our children go to high school and we are talking about the possibility of putting half of them through college. Moreover, if we want to do it, there will be no serious difficulty, because the efficiency of human labor has increased to the point where we can maintain a high material standard of living and still secure these hitherto unobtainable opportunities for our children.

A wealth of material things is not of itself a good. Everything depends on how the wealth is used. Moreover, the men and women of the modern world are often foolish in their use of the wealth which applied science is pouring into their laps. Nevertheless, that wealth, if men can be brought to use it wisely and constructively, constitutes a precious opportunity for the development of a finer future for humanity than it has ever known.

The development of a culture, which alone can make any civilization worth while, requires leisure and the material wherewithal to use that leisure constructively. In all past civilizations, the privileges of leisure have been available to a limited few, based on the drudgery of the many. It is through the contribution of applied science that, in Western industrial civilization, the privileges of leisure and the wealth necessary to take advantage of it have been made available to all. For the first time in human history, a truly democratic culture has come into the range of possibility. The important thing to remember is that the basis of this achievement, without which it could not possibly have been attained, is the increased productivity of human labor which makes it possible for men to produce the material things men need, while leaving time free for the higher things of life; and this increased productivity in turn is due to the efficiency created by modern engineering, by the application of scientific knowledge and method to the practical problems of the production and distribution of goods.



Standard Oil Co. (N.J.)
—Photo by Rosskam

Modern engineering has transformed civilization and created a new era in human history. One is tempted to think of its material creations as representing the real gain of that intellectual discipline that provides mastery over science. But "gadgets" are the incidental accompaniment of the scientific method.

The significant product of engineering is the increased efficiency of human effort in the production of material things, releasing man from drudgery and leaving time free for the higher things in life.



Ward Allan Howe

It is, of course, true that a part has been played by other factors, such as our economic and political systems, particularly by the character of our people, their intelligence, industry, thrift, and discipline. However, in situation after situation in human history, all these other things have coexisted, but the combination never resulted in the economic productivity of the modern world. The one thing lacking was the leadership and achievement of modern engineering. The opportunities and promise of our Western culture is the contribution which engineering has made available to humanity.

Unfortunately, however, there is a dark side to the picture. The material developments of the industrial revolution have inevitably introduced human problems, for clearly, the processes and the machines must be operated by men. These problems are serious. Thus, despite the fact that applied science has given the worker by far the greatest wealth and opportunity he has ever known, the worker is unhappy, indeed far unhappier than in many of the subsistence economies of the past. It is probably not too much to say that the problem of human relations in industry is the major problem of the modern world. In America, it is epitomized by the very name of John L. Lewis. In England, it finds its expression in the Labor Party and state socialism. Communism itself purports to be nothing but the best solution of the problem of human relations in industry. Successful solution would carry us far down the road toward Utopia.

Now the engineer has the tendency to take the position that these human matters are none of his business. Human relations is the problem of management, helped by the psychologist and the psychiatrist. This position makes the engineer highly vulnerable, for, after all, the engineer is the man who discovered

the products of modern industry, who developed the processes, laid out the plants, designed and installed the equipment, assigned the tasks of labor and supervised their performance. When, in the face of these facts, the engineer tries to repudiate responsibility for the unhappiness of the worker, to say the least, he is open to criticism.

The engineer can insist on thus limiting his responsibility, but by this refusal to accept the consequences of his own work, he is reducing himself to the status of a technician. That the engineer is indeed a technician is indicated all too clearly by the character of engineering organizations. We have our separate societies of civil engineers and mechanical engineers, of electrical engineers and chemical engineers, of aeronautical engineers and automotive engineers. Clearly, these groups differ only in the details of the techniques which they must master. In so far as the engineer deals only with these details, he is too narrow to pretend to professional status. In so far as he insists on this limited scope, he is leaving the real problem of leadership to others. It is not unthinkable that other groups can shoulder the problem and handle it. However, if the engineer can be persuaded to assume this broader responsibility, he has extraordinarily important qualifications for tackling the job.

The first group of these qualifications stems from the very nature of the intellectual discipline of science. They are the attitudes of mind and spirit developed by the method, the tradition, and the practice of science.

The truly fundamental principles of science, particularly of the exact sciences, are based on simple, reproducible, convincing experiments. It is obvious that principles thus developed find universal acceptance among scientific men. There is a unanimity of

agreement about them that produces a depth of conviction which, in turn, engenders confidence and decision. The scientist knows whereon he bases his opinions.

It is even more important that the discipline of science develops objectivity of attitude — the ability in the study of a problem to free one's self from personal considerations and to base conclusions and decisions on analysis of the facts alone. This attitude is forced on the man of science by the knowledge that the facts of any given scientific situation are open to all, and any conclusion of his own which is not persuasive to his colleagues is certainly open to doubt, if not indeed probably mistaken.

Along with this depth of conviction and objectivity of attitude, the scientist must be open-minded, because the history of science is forever compelling us to revise our opinions in the light of new facts and new knowledge. This would be discouraging were it not true that in the overwhelming majority of cases the new appraisal turns out to mean, not that the principle originally held was false, but rather that its interpretation was either too narrow or too broad. The new appraisal normally discloses that the older conviction is still a valid and vital part of a larger truth.

While the area of science covers only a small segment of human knowledge and thought, in which the experimental method of science has hitherto been found applicable, these attitudes are valuable in every activity of the human mind. Moreover, one should remember that these attitudes are developed as the result of the discipline of science and not by mere inculcation by its disciples.



F. S. Lincoln, '22

The engineer has the tendency to take the position that human matters are none of his concern. He can insist on thus limiting his responsibility, but in so doing he reduces his status to that of a technician.

The second advantage afforded by scientific background is the prestige which results from the unanimity of agreement among scientific men. The agreement itself makes the man in the street feel that the scientist must know what he is talking about. Furthermore, this prestige is not lessened significantly by the fact that the man in the street also senses that there are large areas, even of science itself, concerning which there is no such agreement. The fact that the problems of some areas have not been solved does not detract from the prestige of having reached solutions in other fields, but rather engenders the hope that those solutions will be expanded and multiplied as time goes on.

There are two other qualities of mind and temperament in which the engineer has the advantage even over the scientist. The first is the habit of practicality in using the scientific method. The engineer, facing complicated situations, has had to develop solutions which, while empirical and incomplete, must nonetheless be workable and constructive. However, he can never remain satisfied with these limited solutions but must always be on the alert to perfect and improve them.

The second of these characteristics is the habit of co-operation. The basis of the success of the industrial revolution is mass production and this in turn has created the modern industrial organization. The engineer works in one of these organizations or is brought into intimate contact with them. Professional success depends upon the development of the capacity of dealing with people, understanding them, and securing their confidence and support. The engineer can be no rugged individualist; outstanding capacity for team play is essential to achievement.

These qualities are important in every area of human activity. Evidence of this is found, for example, in the increasing extent to which engineers are shouldered with managerial responsibilities and the success they have in handling them. The point I am anxious to make is that these qualifications have constructive value far beyond the narrow technologies of the engineering area, and in the public interest it is imperative that these abilities be harnessed by seeing to it that engineers broaden their fields of activity.

Returning to the human problem of the worker in industry, I am going to ask you to let me apply to it, for a moment, the sort of imaginative approach used by the engineer in the solution of his technical problems, so frequently with creative success. The first thing to get straight is that it is not a matter of pay rates. Of course wages must be right, but all too many people have the mistaken notion that earning power is a really important factor in satisfaction in one's job. Indeed, I have heard many a businessman assert his faith in the profit motive, but I have yet to meet one who would stand up for his assertion when it was challenged. The moment any of us come up against an individual dominated by the profit motive, whether the miser at one end of the scale or the ostentatious *nouveau riche* at the other, our reaction is either pity or contempt. Most of us do, however, for two major reasons, believe in the profit system.

(Continued on page 374)

Science in the Secondary Schools

Underlying the crisis in education are our attitudes toward learning and the teaching profession. What we lack is the sense of pride and the importance of great learning. We need an aristocracy of intellect

by J. A. STRATTON

I HAVE been asked to talk with you about education and specifically to consider the teaching of science in our high schools. I think it unlikely that we shall arrive at any very novel conclusions. On the subject of education there is in process, over the entire country, a "Great Conversation" and a rising crescendo of debate. People gather together in community groups to discuss aims and methods. There seems to be a growing consciousness that the bright new scientific age of ours is imposing demands upon our schools that they are ill-designed to meet. Each week brings us new books, the reports of more committees, and the addresses of distinguished citizens and educators. The shortage of scientists and engineers, the rising tide of enrollment, the plight of the teacher, have all become bywords in our daily reading.

We hold out no hope of an easy solution to these problems; but I am sure that you share the conviction that we must seek solutions, and that it is urgent that we continue to seek them. Often in the course of that search, we shall find ourselves carried back over familiar ground. The re-examination of familiar themes is only part of the price we have to pay for a clear grasp of the enormously complex situation that challenges the American public. We are indeed dealing with the most difficult and meaningful problems of our time. In an era of unprecedented change induced by spectacular advances in science and engineering, we must learn to educate our children so that they may cope successfully with the conditions of a radically new society.

The ideas that underlie our schools have their roots deep in the traditions and culture of the American people. It is no simple matter to alter convictions so widely held and so deeply ingrained. But the aims and the quality of the schools, and the status of a teacher, are limited by the standards and intellectual aspirations of the community of which they are a part. The wisdom with which we, as citizens, resolve the critical problems of education that now press us on every side, and the material sacrifices that we are prepared to make in support of our ideals, will determine in good measure the kind of a world in which our children shall live.

Some of these problems are terribly urgent and we must deal with them by whatever expedient means we can devise. We must build schools, find more pay for teachers, invent more ingenious modes of teaching, arouse the interest of the community to the needs of its schools. I anticipate that our discussion will

center largely on these immediate short-term measures, on ways of attacking the problems that are on our doorstep today and will worsen tomorrow. These are tangible problems that can be alleviated by practical planning. But let us not delude ourselves with easy hope that more classrooms and an improved pay scale for teachers alone will dispel our troubles. Underlying this crisis in education — and I do believe that there is a crisis today — are certain American attitudes toward learning, and toward the profession of teaching.

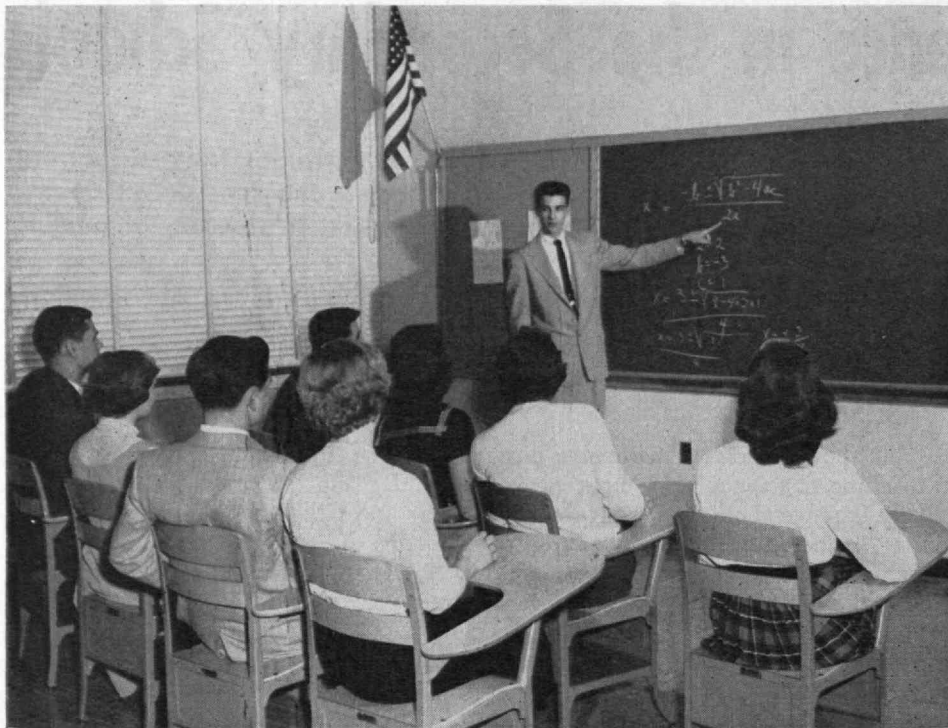
In dealing primarily with the teaching of science, I do not believe that we can single out the problems of the high school teachers of science and deal with them apart from all the rest. The current shortage in one area is only symptomatic of more deep-seated ills that beset the entire system. As a practical matter, to meet an immediate need, we had better find ways of increasing the compensation of teachers of physics, chemistry, and mathematics. In the long term, however, such measures, taken alone, will fail to resolve our most critical difficulties, and may even aggravate the discontent.

I think it appropriate to remind you, ever so briefly, of certain forces that shape the larger problem. Unhappily I cannot at the same time suggest the means whereby they may be quickly altered. They are part of the pattern of American life. Nonetheless I believe it of the utmost importance that we recognize these forces, so that we may comprehend our total problem in all its dimensions.

The fundamental dilemma of the American school — and indeed of American society — is a problem of numbers. We have failed to reconcile an apparent conflict between quantity and quality. About 10 years ago, James B. Conant, formerly President of Harvard, wrote a book called *Education in a Divided World*.^{*} It dealt with the function of the public school in our unique society. Dr. Conant points out that, on the one hand, we aim towards a classless society and believe universal education to be our most powerful instrument in reducing the distinctions of privilege. Yet, he says:

"The more we try to employ the instrument of universal education to offset those forces of social stratification inherent in family life, the more we jeopardize the training of certain types of individuals. In particular we tend to overlook the especially gifted

^{*}Cambridge, Mass.: Harvard University Press, 1948.



H. Armstrong Roberts

Science must be viewed in our secondary schools not simply as a base for a vocation, but as an indispensable element of a modern and liberal education. Science has become part of the total culture of our time.

youth, and neither find him early enough nor guide him properly, nor educate him properly in our high schools. . . . There is an inherent difficulty in our desire, on the one hand, to give a general education on a democratic basis for all American youth, and on the other to give the best specialized professional training for a selected few."

Dr. Conant has been confident that this dilemma can be resolved. In fact it is difficult to imagine any basic obstacle to the achievement of our dual aims: first, to realize a system of universal *opportunity* in education at every level; and second, to show proper concern for the notably gifted, the industrious, and the ambitious. Yet, as one surveys the contemporary scene, it is hard to avoid a conclusion that the average American community — and consequently the average school — holds this second aim in low esteem.

A total indictment of this sort would certainly be unwarranted. I am well aware of many efforts and plans in one part or another of the country to set high standards of excellence in the secondary school, and to discover and encourage the special interests of the individual child. These efforts are laudable but inadequate for the long-term welfare of the nation. The fault lies less with schools that, even now, are grossly overburdened, than with a public that signally fails to place a high premium on the cultivation of excellence. It seems to me that we Americans are plagued with confusion on the nature and aims of democracy. The issue is not one of discrimination among several levels of human dignity and worth; rather it is to recognize courageously the obligation of a democratic people in the interest of its own survival — to seek out and educate, with thoughtful care, the most promising of its human resources for spiritual and intellectual leadership. We must persist in our efforts to afford to every American child the maximum facility and opportunity for education. We must also take

better account of the enormous spectrum of human ability, interests, and initiative. Our insistence upon common standards of achievement within the grasp of the entire body of our high school youth threatens to impose upon us a common level of mediocrity.

If this plea for the cultivation of excellence stirs democratic misgivings, let me reassure you that Thomas Jefferson himself suffered from no such qualms. His plan of 1781 for general education prepared the way for our system of public schools, and in that historic document Jefferson urged that from the primary schools there shall be chosen each year "the boy of best genius of those whose parents are too poor to give him further education and to send him forward to one of the grammar schools . . . for teaching Greek, Latin, geography and the higher branches of arithmetic. Of the boys thus sent in any one year, trial is to be made at the grammar schools one or two years, and the best genius of the whole selected and continued six years, and the residue dismissed. By this means twenty of the best geniuses will be raked from the rubbish annually and be instructed at the public expense so far as the grammar schools go. At the end of six years' instruction, one half are to be discontinued, and the other half, who are to be chosen for the superiority of their parts and dispositions, are to be sent and continued three years in study of such sciences as they shall choose at William and Mary College."

The words are harsh but the plan is clear. We can neither ignore the diversity of taste and inherent limitations of the human mind nor wish them away. We have gone far since Jefferson's day to lift and broaden the base of public education. May we show an equal concern for the discovery and cultivation of our own genius.

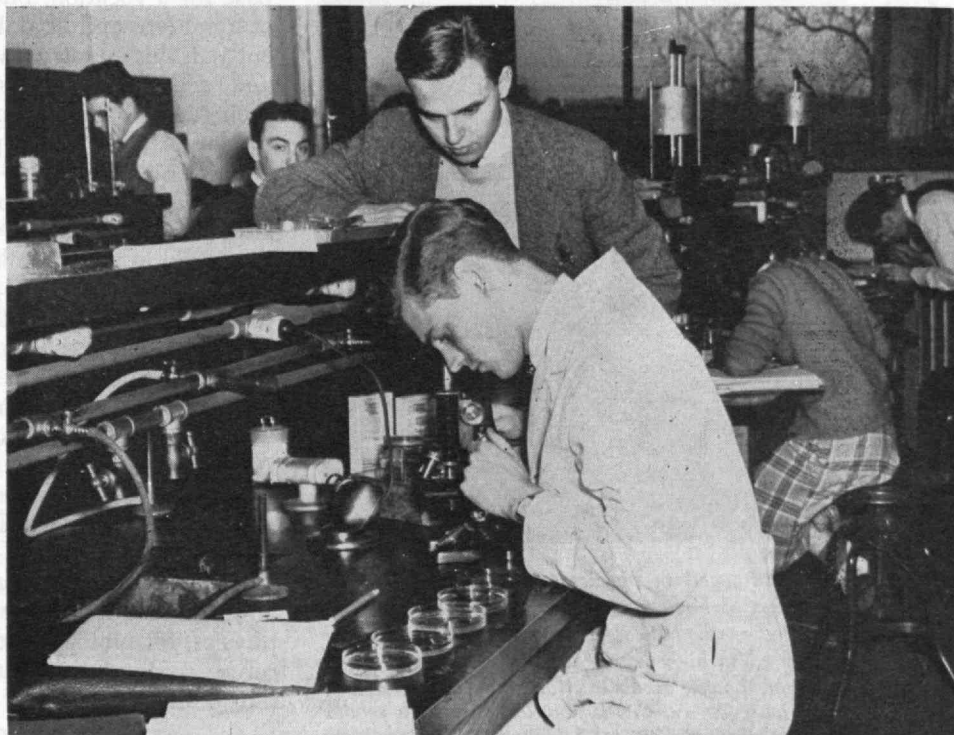
Let me turn now to a second issue of great moment in the world of education, an issue intimately related

to the first and no less vexing. There is in fact no more distressing experience for those who have the best interests of our schools at heart than to observe the deteriorating status and prestige of the teacher. We have here, I suspect, a sociological problem of great complexity for which no single factor or simple theory will account in its entirety.

Clearly the very massiveness of our national educational effort contributes predominantly to the diminishing status of the individual teacher. In a curious but significant way our entire educational system reflects the virtues and defects of the American genius for production in large quantities. In every situation of major dimension we seem drawn infallibly toward the organization of the mass process, and by its very nature that large-scale process tends toward a standardization of the product. Perhaps it is not unfair to comment that, in our zeal to organize schools and school systems, we ignore the spirit and meaning of the school itself. Teacher and student are swallowed up in a huge, impassive structure; personal identity is lost in the lonely crowd.

We touch here upon questions that transcend education and that affect the future of all American society. Our peculiar bent toward massive organization has been recently accentuated by remarkable advances in the technology of computation, prediction, and communication. In a very real way the developments of electronics of the past decade make possible an increase in size of the basic effective units of industrial and governmental organization by an entire order of magnitude. The laws of economics are allied with a native American taste for large operations to drive us in this direction. There is, of course, no inherent evil in bigness of itself. But the challenge to our generation is to educate our children that they may learn to retain, as members of these larger units of society, the sense of their own worth and dignity as individuals.

H. Armstrong Roberts



The challenge to our generation is to educate our children that they may learn to retain, as members of our large units of society, the sense of their own worth and dignity as individuals.

Unhappily it seems to me that our teachers themselves are contributing increasingly to the worst effects of a large-scale process upon individual worth. In early January, there appeared in the Boston *Herald* a letter that I shall quote in part as it expresses a view shared by many moderate and thoughtful citizens. The letter is from a teacher who has had 29 years of experience in high schools in the largest cities of the United States. She remarks that —

“ . . . The alarming shortage of teachers is not due primarily to salaries. Where else can persons of average, or even mediocre intelligence, command salaries ranging from \$3,500 to \$7,000 annually for a maximum of 200 days’ work? On Army I.Q. tests teachers rank lowest of all professional groups.

“The shortage is due to the demoralization of teaching as a profession by the little educators who have tried to make teaching a science measurable by objective tests scored on a machine, instead of considering teaching an art, dealing fundamentally with human values, and requiring aptitude, enthusiasm, and a broad cultural background.”

There is more in the same vein and well said, but in these few lines you will recognize one of our most difficult and bitterly controversial problems. It is possible — even probable — that professional schools of education have been excessively maligned. But apart from these schools, or perhaps as a product of them, there have emerged groups excessively pre-occupied with the promotion of local ordinances and state-wide legislation whose effect is to hamper rather than encourage true professional development. In many states they contributed vastly to the regimentation of the teacher, and, in my opinion, to the depreciation of his status.

One may observe, for example, evidence of this influence in the efforts of teachers themselves to eliminate or minimize salary differentials from one grade to the next. If teachers are unwilling to place a pre-

mium on the teaching of high school Latin or mathematics over that of kindergarten, of physics over typing, then they can hardly be dismayed by the unwillingness of the community to attach a greater importance to their profession. The first condition for increasing public respect for the teacher is that teachers should respect themselves and give evidence of that respect by recognizing distinctions and honors in their own ranks. This is a fundamental condition for the maintenance of the prestige of any profession.

My correspondent, whom I quoted a moment ago, remarked that the shortage of teachers is not due primarily to salaries. This I believe to be true, but nonetheless salaries *are* low and their level reflects public opinion. To account for the low prestige of teachers you will often encounter the cynical view that American society esteems only those who earn large salaries. This may be a confusion of cause and effect. We pay high salaries to those we esteem. Whether we like it or not, the distribution of each tax dollar reveals the scale of values that we hold as a people. The tax on gasoline has been allowed to triple in recent years and we accept the burden of a 100-billion-dollar Federal road program with hardly a murmur. Education will help pay for those roads. There are few private colleges in the country where tuition covers more than half the cost per student, yet we boast of the mounting number of two-car families as a proper index of our standard of living.

In many respects the United States is the most literate country of comparable size in the world. The

median level of general knowledge is high, and there is a broad awareness of public issues. We set great store on the universality of our system of education. What we lack is a sense of the importance and the pride in great learning. The great cultures of western Europe arose out of an aristocracy of the intellect often transmitted from one family to the next. So far as these families were confined to a privileged class and the transmission was by inheritance of wealth, the system was bad. Surely there can be an aristocracy of the mind without bonds to the privileges of a class. The cultivation in the family of a taste for learning, for scholarship, for all that is excellent in mind and spirit is our great task and challenge.

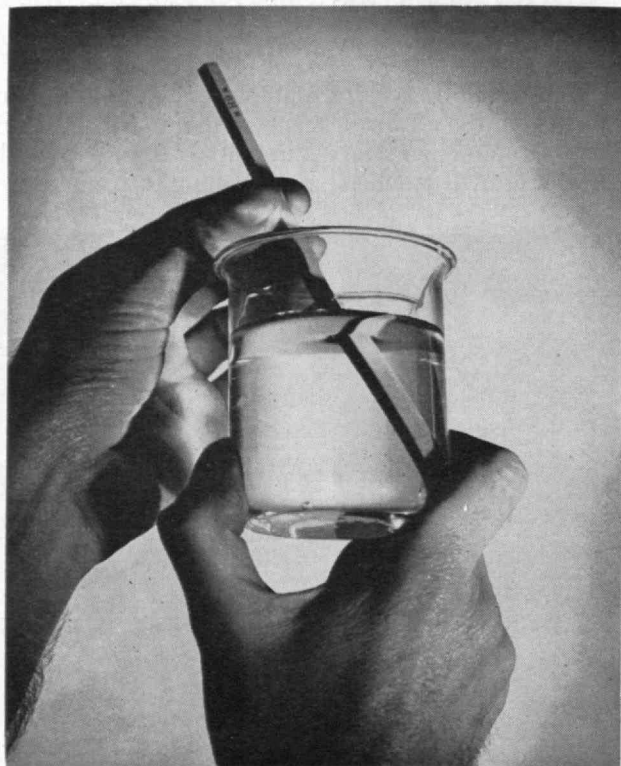
The ultimate responsibility, and the key to any solution of our dilemmas, lies more within the family and the community than within the school. When we, as citizens and parents, fail to demand the highest performance in school, and to sacrifice as need be for the support of our schools, then we must accept the dwindling prestige of the teacher and a watering-down of the curriculum. By this apathy toward scholastic standards we discourage incentive on the part of the child. It is indeed strange that in a land of competitive private enterprise and highly competitive sport, scholastic competition is frowned upon as conducive only to social maladjustment.

Thus far I have avoided speaking particularly of science. That is because I doubt very much whether we can materially improve either the teaching of science or the status of the science teacher until we have attended to the more fundamental defects in the aims and processes of the high school itself. There are many steps to remedy the immediate crisis that can and should be taken at the local level. But whatever we do will be done in the context of the larger problems that I have ventured to describe.

In conclusion, let me urge only that science must be viewed in our secondary schools not simply as a base for a vocation, but as an indispensable element of a modern and liberal education. There exists presently in this country a very real shortage of scientists and engineers. We must work to replenish and swell their ranks, but in the process let us not lose sight of the larger objective of producing educated men and women. Science is now part of that common foundation of knowledge upon which all professions rest, and without which no man can clearly comprehend the world in which he lives. Science has become part of the total culture of our time, and scientists and teachers of science will enjoy respect and support only in so far as their aims and methods are grasped by an educated public.

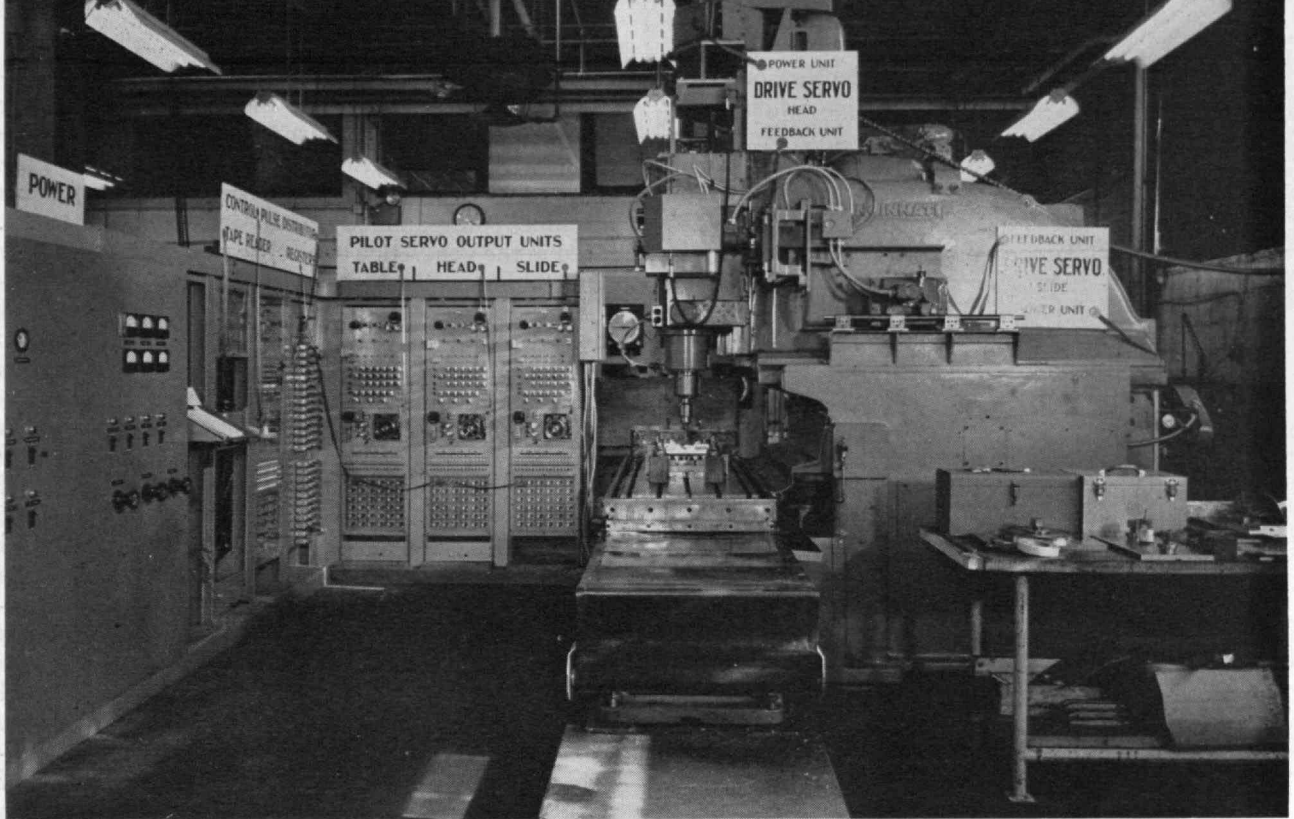
It is the task of the high school to lay the groundwork for this broad and enlightened comprehension. At this level the particular choice of substantive material is of less consequence than the spirit and perception of the teacher. Our critical shortage of science teachers is not a mere shortage of numbers, but of men and women instilled with a deep understanding and an unquenchable love for mathematics, for physics, for biology, and endowed with the power to infuse some of that enthusiasm and eager curiosity into their students.

(Concluded on page 372)



Three Lions

"All the results surveyed in physics were obtained through the mental process of human beings; all the laws expressed by dry words and mathematical symbols were arrived at by men who possessed in high degree such human attributes as vivid imagination, power of abstraction and synthesis, perseverance, and patience. All this is now lost in a high school course." — General Report, Physical Science Study Committee.



M.I.T. Photo

Experimental model of tape-controlled milling machine developed at the Institute's Servomechanism Laboratory has served as prototype for design adopted by industry.

Automation

Robotry, in the guise of a Greek word with Latin prefix, is regarded not as another industrial revolution, but as demonstration of man's effective co-operation with nature

by GORDON S. BROWN

MAN has come far along the road toward employing modern developments of science and engineering. He has adopted mature, sophisticated ways to expand the base of industry, to increase productivity, to improve the quality of product, and to reduce the amount of muscle that, in earlier times, was explicit in industrial operations. These developments stem from two great motivations of mankind—namely: (1) his urge to convert, control, and utilize energy, and (2) his urge to process, code, and transmit information.

The replacement of muscle by machine is not new. Its origin can be traced back to the development of the wheel or the stone axe. The replacement of much of the burden formerly placed on man's brain by electronic devices and other aids is, by contrast, quite new. The high level of sophistication in today's accomplishment of these matters—an intellectual achievement—is the only truly new face on the scene.

In more specific terms, following the thoughts of my colleagues,* these achievements are manifest in terms of:

(1) The creation of truly massive machines and the integration of hitherto separate manufacturing operations into lines of continuous production through which the product moves "untouched by human hands." This development was originated primarily by mechanical engineers. It has been evolving for centuries. Jacquard's automatic-card-programmed loom appeared more than 150 years ago. The modern textile or steel mill, or the modern petroleum or chemical plant, is, in these terms, a lot of machinery with an occasional man here or there. Much food is processed this way, with better sanitation if not better taste. We shall refer to this integration simply as mechanization, or "continuous automatic production."

* George B. Baldwin and George P. Shultz, "Automation: A New Dimension to Old Problems," *Proceedings of the Industrial Relations Research Association*, December, 1954.

(2) The use of feed-back control devices, or servo-mechanisms, which allow individual operations to be performed without any intervention of the human in order to control. With feedback, there is always some built-in device which automatically compares the way in which work is actually being done with the way in which it is supposed to be done, measures any difference, and then automatically initiates action within the system which adjusts the process in order to reduce the difference. This second development we shall refer to simply as "feed-back technology." Its development was initially pioneered by mechanical and chemical engineers. Watt's steam-engine governor or the home thermostat are commonplace examples. With the recent transplant of electrical engineering technology, it is being applied in a host of new ways.

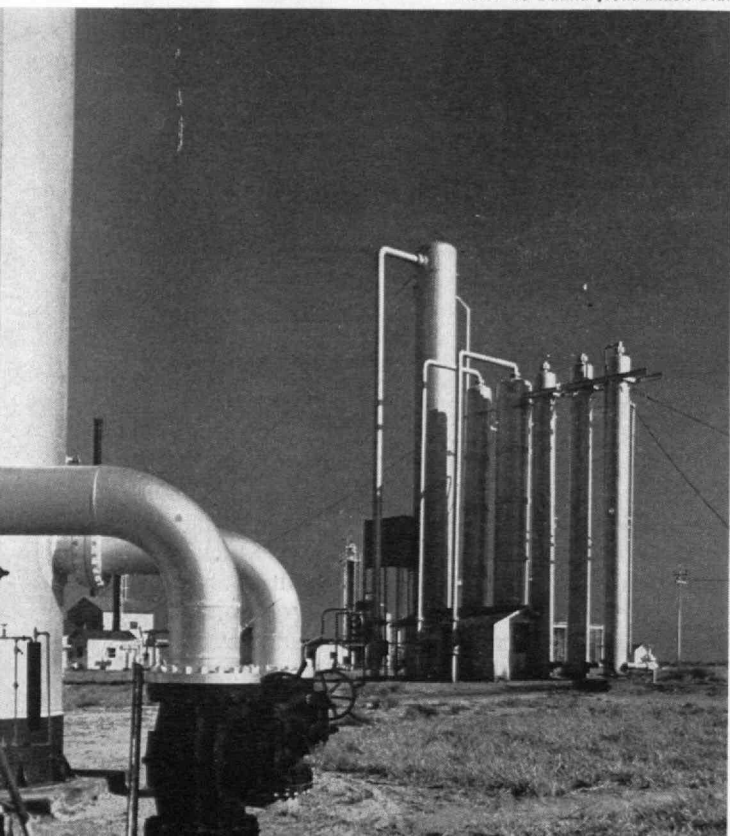
(3) The development of general- and specific-purpose computing machines, capable of interpreting and storing information and of performing both simple and complex mathematical operations on such information. We shall refer to this aspect of automation as "computer technology." It has sprung primarily from very recent developments in physics and electrical engineering, specifically electronics.

What Is Automation Doing?

Throughout all industry automation provides release from drudgery. Simple mechanization or programmed operation eliminates handwork in performing repetitive jobs, or in loading and unloading machines. Gone are the days when workmen toiled and sweated in dangerous proximity to red-hot ingots in the steel mills. The mining of coal has consistently

The creation of massive machines and the integration of hitherto separate manufacturing operations into lines of continuous production, as depicted by this gas refining plant, represent a high degree of mechanization but not necessarily automation.

Victor de Palma from Black Star



called for more skill and less muscle. One trite example is the substitution of the vacuum cleaner for the broom. Many of the repetitive operations in the automotive industry, the electronics industry, and the canning industry have been taken over by massive machines programmed to do intricate operations. Even in the generation of electric power, the drudgery of watching a voltmeter or a speedometer to hold voltage and frequency to the desired value is a thing of the past.

Mechanization had its beginnings a few centuries ago, and greatly increased the need for machine operators, but dulled their interest in their work. As automation has advanced, its effect within industry has been, mainly, to reduce the relative number of machine operators, and to increase the number of maintenance men, engineers, office employees, and other non-machine-operators. Since the turn of the century, the ratio of nonproductive employees to productive employees in the manufacturing industries has increased from 7 per cent to 20 per cent. In the last 15 years production workers have only increased 55 per cent, while others have increased 95 per cent. Concurrent with this change, many formerly unavailable articles are now produced within the means of persons of moderate income. By replacing much routine manual work with semi-creative effort, automation is tending to put interest back into jobs.

Automation permits increased output and increased quality. With the turn of the century the tempo of industry rose. The quickening pace of technology increased the complexity of process operations, with the result that the task of coping with the manipulative complexities eventually overtaxed the skill of operators. Gradually corrective actions were applied, not by the human operator, but by the instrument itself, and thus emerged automatic operation in the form of feed-back control. The substitution of an instrument for a man — with feed-back and associated techniques to measure and to initiate correction — was a turning point in technology, for it liberated the machine from the limits of operation set by the physical capabilities of the man. Instrumented corrective actions have grown to sizable proportions in modern times. As its full scope has become more widely understood, many of the traditional relationships between instrumentation, technique, and process have been challenged. Machines now talk to one another in new ways. It has brought about the transplant of much modern science from the laboratory to the production line, and has contributed much to our industrial growth. It gave us the earliest manifestations of full automatized production as so widely exploited in industries which process liquids through pipes, pumps, and vats. In many industries it offers the only means of production in quantity at a quality that our national defense dictates.¹

Automation relates the operator to the machine in new and important ways. Illustrative of this relationship is the new kind of automatic machine tool^{2, 3} which has recently emerged at the Institute. The tool is a conventional milling machine. It has three axes of motion: one right and left, a second up and down, and the third in and out. Instructions for motion along

¹ For numbered references, please see page 372.

these axes are supplied to the machine, not by a human operator, but by a series of instructions contained on a strip of paper tape. The instructions are contained on the tape in the form of holes. Each array of holes represents a coded number. Each number represents a command to the machine. The paper tape is fed into a computer associated with the machine and, once the operation is started, a complicated milling operation can be performed without further human intervention. Here is a good example of how a computer and its associated controls can nicely provide an efficient coupling between the designer of a part and the machine that is to make it. Information is given to the machine in a way that exploits the machine's capability, without the degradation of information inherent in manual setting of dials and knobs from drawings or tables of data. The instructions are given the machine by the designer of the work piece in the way that he knows best—in terms of equations or numbers. The computer merges the two. Man now talks to his machines in new ways. Machines of this type are appearing in increasing numbers and possess great capability to manufacture one piece today and a different piece tomorrow without expensive tool setups.

Automation increases flexibility and the capability of management to make decisions. During the past two or three years, computers have become vital elements in business. Dozens of the million-dollar variety are in use by the railroads, the air lines, the manufacturers, the insurance companies. They are being employed to make up-to-the-minute computations of payrolls, for inventory control, to evaluate business statistics, and to control the nation's air traffic. They perform these jobs almost in their spare time, while making numerous scientific and engineering calculations that heretofore would have taken years. But they are not giant brains and they do not think. They have not yet found their optimum role in business. One might say that the marriage of business and the computer is still in the honeymoon stage and this is the reason why business conferences on computers in automation have been of epidemic proportions. The machines merely have great capability for processing information, for talking with one another, especially when the words are coded for them in a manner similar to the early Morse telegraph code. Large-scale computers have caused management to re-evaluate many of its traditional business procedures, with the hope of widespread economic benefit. Perhaps the most significant advance on the horizon, however, is the merger of computers and feedback. As a result of this merger, the human operator will be able to perform his functions in a way that he finds more natural, and the machine will be able to accept commands in a way that it likes best. That is, computers and feed-back control systems can serve to couple more closely and efficiently the man, the process, and the machine.

Automation achieves things that man alone cannot. With skill and precision, automation technology navigates aircraft even when the pilot cannot see the tips of his wings. It permits guiding missiles to their rapidly moving target with unerring precision. It offers the only means now in sight for the production



L. H. Deatherage from Black Star

The replacement of muscle by machine is not new. Its origin can be traced to the development of the wheel or the stone axe.

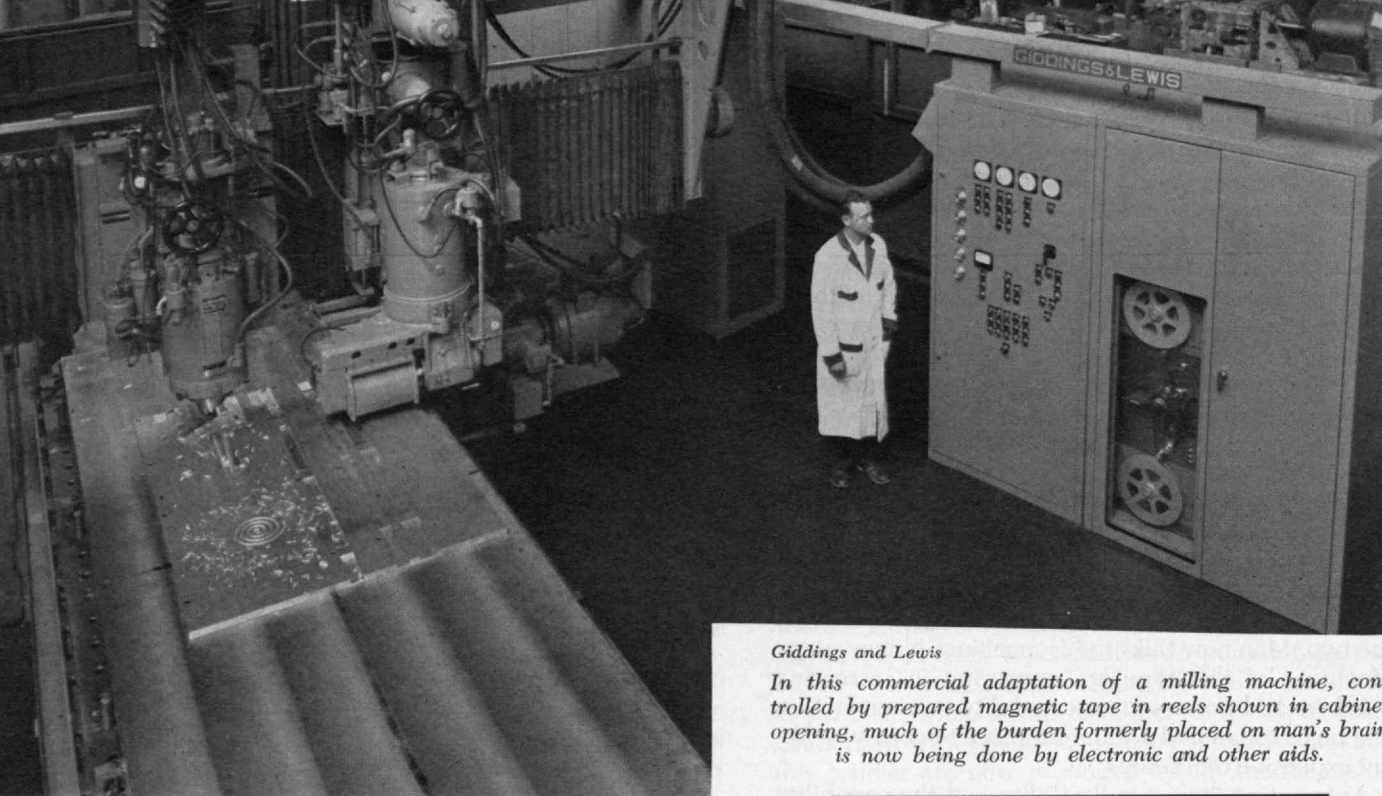
of much military equipment with adequate quality and quantity. It runs atomic power stations because of the capability of gadgets to operate within environments where the human could not survive.

What Is the Price Tag?

To the question of the cost of automation the answer is simple and blunt. The human being must become better educated or smarter. He must face the realities of change and even be able to sense that he may be in an era of substantial and accelerating rate of change. The challenge before us is an intellectual one, for as we move in the direction of exploiting science for the benefit of man, we call for less and less muscle and more and more mind. Via automation, we inevitably end up with a society and an industrial machine which require new ideas, new values in human conduct, and a greater intellectual capability to keep running. We are now called upon to integrate machines, processes, management, and labor as segments of society, using new intellectual approaches that we are only beginning to recognize and measure, as the traditional role of all four segments is shifting and as issues come and go.

The big question is man's capacity for change. Both our jobs and our mode of life must change, and the change will be substantial. As human beings, we have the great capacity for reorienting our lives and our destiny. We do this as no other form of life can do it. We are distinguished from the lower forms of animal in our ability to mold our environment in a manner that fits our evolutionary desires. To illustrate, one need merely note that birds seem always to build the same kind of nest and fall prey to the same animals, generation after generation. The human being, on the other hand, each in his short span of life, can reorient his attitudes and guide the development of his environment. This we are prone to dismiss with the comment, "the inevitable state of change," but right now we are undergoing a major increase in its tempo, often with consequent fear and bewilderment that stems from ignorance.

Not everyone takes change in his stride. There is a well-known piece of prose credited to the philosopher



Giddings and Lewis

In this commercial adaptation of a milling machine, controlled by prepared magnetic tape in reels shown in cabinet opening, much of the burden formerly placed on man's brain is now being done by electronic and other aids.

and musician, Maurice Maeterlinck, which goes: "On every crossway on the road that leads to the future, each progressive spirit is opposed by a thousand men appointed to guard the past."

Just what changes are we talking about? There are several. One is our changing set of values as to the human use of human beings. We will also need to recast our appraisal of the value of leisure. If the length of the working week is reduced, as seems very likely, we will need to be sure that leisure is financed; otherwise, it could conceivably become unemployment. What we want is more education and culture, more research, more medical service, more entertainment, more leisure-time industries, more tourism — with its roads, parks, and beaches. We will need the ability to purchase these leisure goods and services.

Germane to these questions are the contrasting opinions on whether increased productivity should result in increased wages, or reduced working hours at the same wage. Is the return to go to the worker or to capital? The answer is, of course, that it must be shared, for rough statistics presented by economists show that, at today's costs, new equipment purchases average around \$35,000 per man-year reduction in labor. About half of the new equipment currently purchased is for the expansion of capacity, and the other half for modernization and replacement with consequent displacement of the labor force. But taken as a whole, if each \$1,000 of extra capital adds \$430 to the net national income — as the economists tell us — a breakdown shows that labor gets the lion's share. About \$20 goes for local government taxes, \$50 goes to the Federal Government, a mere \$60 to the investor of the \$1,000, leaving \$300 to the worker. Somewhere within this process, leisure can be financed if we, as a team, adjust to it properly.

Another change must be an increased flexibility of mind and habit. This increase is required of the work-

ing man, the labor leader, the industrial manager, and John Q. Citizen. As automation — the concept — is translated into machine systems, a premium is placed on flexibility of mind coupled with a high degree of occupational adaptability. We hear a lot about the upgraded job. Failure to qualify for the upgraded job hits the engineer and even the scientist. History shows that within a very short while after a new machine appears, mankind demands from it a performance far in excess of what its creators intended it to do. This increased demand on the machine continually increases the demands on the professional skills of the technical minds who create them. It also makes increased demands on the manipulative skills of people who keep them running, for as productive capacity increases, the premium on keeping a machine running increases greatly. Throughout the creative segment of technology there is persistent intellectual upgrading, a fact that sometimes jolts even the mathematician, who in exchange for the relief from the drudgery of much mathematical calculation afforded by the computing machine has had to accept the responsibility to know more mathematics and think more deeply into his problems.

The problem is often dismissed by saying, "Automation will displace labor, but since it will create jobs, everything will be lovely." Sometimes we hastily brush aside the question of how the worker who is displaced moves into the upgraded job, which history shows always exists. Since the developments invariably stem from the application of new technological discoveries, young men recently graduated from trade schools and colleges move naturally into the stream. This makes automation a young man's game. But we can't overlook the fact that the oldsters still have to play. They must be educated or trained to adapt themselves. If they are to move into the up-

(Continued on page 364)

BUSINESS IN MOTION

To our Colleagues in American Business...

Under today's competitive conditions, a manufacturer can't afford to take anything for granted. He continually seeks to improve even the so-called "perfect" product and to reduce production costs.

One such progressive manufacturer, in reviewing the materials and processes used in making their spherical roller bearing cages, sought the opinion of others. One of those "others" was Revere's Technical Advisory Service, which was called in to review the kind of brass that was being used in the cages and to study the problem first-hand. This meant consulting with the engineering department as well as observing the manner in which the bearing cages were being produced.

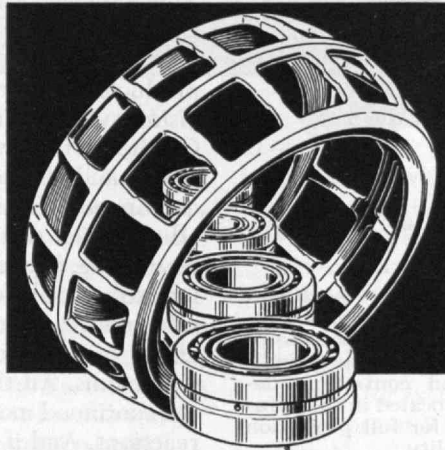
After a careful study recommendations were made. The result was the adoption of specification changes in the brass strip used which, in addition to improving the quality of their roller bearing cages, gave this manufacturer the following money-saving advantages: One bore pressing operation has been eliminated. Machining is more easily accomplished. Less machining is required. Tool life has been increased with some speeds increased up to 100% and feeds up to 30%.

Rework due to burrs has been greatly reduced. One step less is required in the deburring operation while savings through reduced cycle time for remaining deburring operations are up to 40%. Chips are small now... there is no "angel hair" to clutter work area. Life of punch used in notching roller bearing cage has been doubled. Now a run may be completed with-

out making tool adjustments due to sharpening tools. Machining speeds and feeds have been substantially increased over those in machining the former alloy. Die setters report that considerable work has been eliminated in setting up the tools used. All of which resulted in substantial savings in time and money.

This is still another eye-opening example of Revere supplying the metal that will do the best job

and with the greatest economy... be it brass, copper or aluminum or any one of their alloys. It is also another example of the many advantages of working closely with *your* supplier, whether it be through Purchasing, Production, Engineering or Design Departments, separately or collectively. It is one sound way to go about lowering production costs, improving manufacturing techniques and bettering *your* product.



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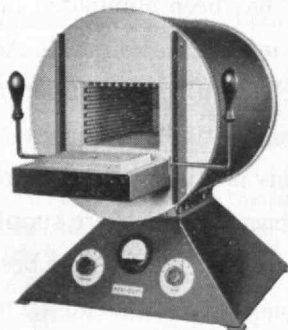
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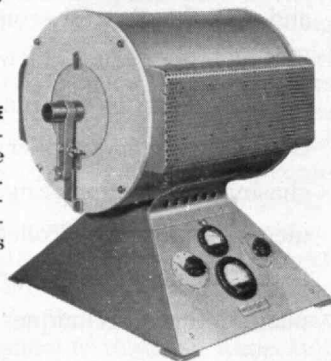
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AUTOMATION

(Continued from page 362)

graded job, their flexibility and versatility to accept and to perform widely varying tasks seem more and more likely to be at a premium, in the long run. Creating the opportunity for both oldsters and youngsters to adjust to the change of the job mix and to move into a better job — an upgraded job — may become an issue of importance comparable with that of higher wages in a job classification that soon may not exist. The guaranteed annual wage or the vested or unvested pension are relevant issues. The intelligent appraisal of the inevitable technological change, and the planning for it, are joint responsibilities of managers, technical people (such as scientists and engineers), educators (at both the elementary school and college levels), and labor leaders. Furthermore, there must be training for both the appraisal and the planning to insure that technological change be intelligently carried out at all levels.

Another change of importance must be the continued expansion of the base of our technology and, in turn, of our mode of life. We have hosts of new industries producing new conveniences or services. In the General Electric Company alone, 70,000 of the 230,000 employees work on products that did not exist in 1939; including, for example, new chemical products, nuclear energy devices and machines, television systems, and components of modern aviation. On the horizon we see new devices such as the transistor, and the semiconductor; new metals like zirconium and titanium, and even man-made diamonds, all of which will permit us to do things we are not now doing. We are witnessing the birth of a vast new industry to exploit atomic energy. We hear about solar energy, about new forms of food from algae, about energy from elements of sea water in man-made suns. All these and many others emerge from the continued man-made technologies almost as chain reactions. And if you don't believe that human pressures will bring them about, just ask yourself whether, when you were around 12 or 15 years of age, you demanded of life what your son or daughter of that age today demands of life. This is one factor that seems to cause the sustained expansion of industrial employment despite increased productivity. Sometimes technological practices may look a little odd, as for example, the increased man-hours required to manufacture the 1957 automobile over that required

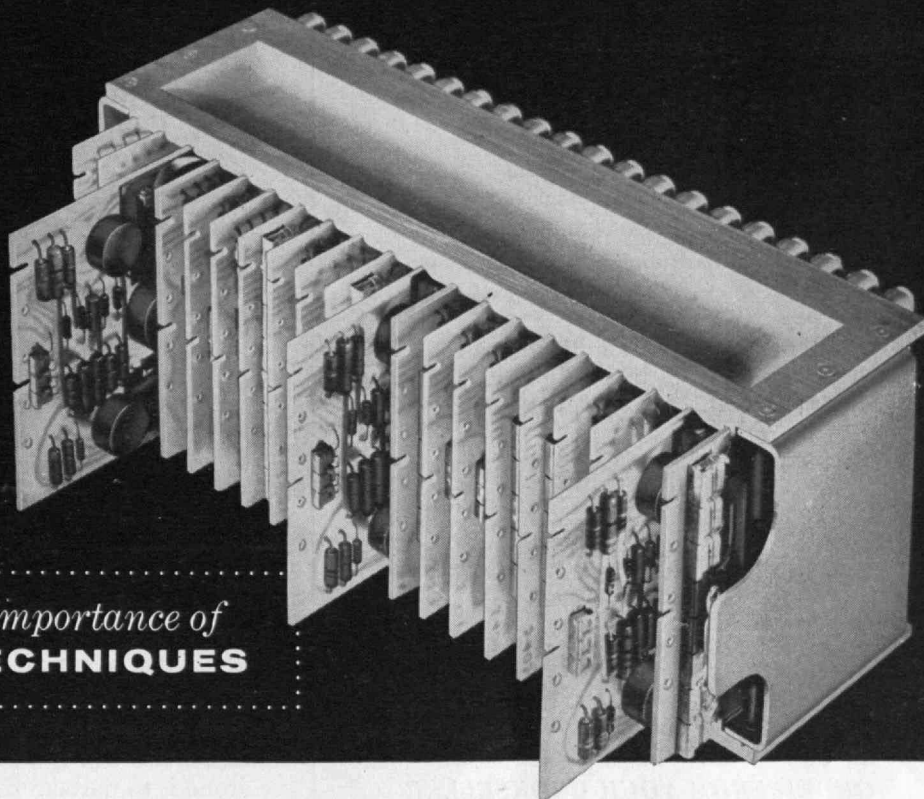
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The growing importance of **DIGITAL TECHNIQUES**

As recently as ten years ago it was just becoming evident that digital techniques in electronics were destined to create a new and rapidly growing field. Today, incorporated in electronic computers and other equipment, they constitute one of the most significant developments in scientific computation, in electronic data processing for business and industry, and in electronic control systems for the military. In the near future they are expected to become a major new factor in industrial process control systems.

The digital computer for scientific computation is becoming commonplace in research and development laboratories. Such machines range from small specialized units costing a few thousand dollars, to large general purpose computers costing over a million dollars. One of these large computers is a part of the Ramo-Wooldridge Computing Center, and a second such unit will be installed the latter part of this year. The digital computer has not only lightened the computation load for scientists and engineers, but has made possible many calculations which previously were impracticable. Such computers have played a major role in the modern systems engineering approach to complex problems.

Electronic data processing for business and industry is now well under way, based on earlier developments in electronic computers. Data processors have much

in common with computers, including the utilization of digital techniques. In this field, teams of Ramo-Wooldridge specialists are providing consulting services to a variety of clients on the application of data processing equipment to their problems.

The use of digital techniques in military control systems is an accomplished fact. Modern interceptor aircraft, for example, use digital fire control systems. A number of Ramo-Wooldridge scientists and engineers have pioneered in this field, and the photograph above shows a part of an R-W-developed airborne digital computer.

These, then, are some of the aspects of the rapid growth which is taking place in the field of digital techniques. Scientists and engineers with experience in this field are invited to explore openings at The Ramo-Wooldridge Corporation in:

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AUTOMATION

(Continued from page 364)

to manufacture the 1940 model. In the past 15 years the number of employees of the General Motors Corporation has doubled without a proportionate increase in the number of automobiles produced, because we demand—and get—automatic shifts, power steering, air conditioning, power brakes, and other gadgets. In turn we demand more and better roads and new technologies to provide them. Clearly, without automation and increased productivity, we could not have this expanded technology.

But part of the price tag is that under the conditions that are coming to life beyond tomorrow's horizon, it is not adequate to train tomorrow's youth for today's job. Too often the job for which the student is trained may have vanished before he graduates. With change all around us, education forces on us a supreme challenge.

Speaking strictly about technical competence, the future looks more and more dim for the man with only the narrow pin-pointed skill. Everywhere technology demands of the young engineer or scientist a broader and deeper command over the fundamentals of modern science, and a high degree of versatility and originality in its exploitation. A man who meets this test has freedom or elbow room to move around, to partake freely of specialized jobs as they develop. There is clearly a great shortage of engineer-

(Continued on page 368)

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Working together to bring people together... **Bell Telephone System**



AUTOMATION

(Continued from page 366)

technicians and engineer-scientists. But even more important is the impact of automation on the cultural and social responsibilities of human beings. One might properly ask whether our educational system has kept pace with the changes in the world in which we live.

Perspective on this issue at one end of the spectrum was presented by J. A. Stratton, '23, Chancellor of M.I.T., in his address, "Science and the Educated Man," before the Twenty-fifth Anniversary Meeting of the American Institute of Physics, on February 2, 1956.† Dr. Stratton was much impressed with some of the writings of Henry Adams, who, in his search for what he called the "dynamics of history," attempted to explain the break in the traditional unity and stability of the early Nineteenth Century. Adams was moved to reflect on what he saw while attending the Paris Exposition of 1900. Of the new American he wrote:

"... the child of incalculable coal power, chemical power, electric power, and radiating energy, as well as new forces yet undetermined — will be a sort of God compared with any former creature of nature. At the rate of progress since 1800, every American who lives into the year 2000 will know how to control unlimited power. He will think in complexities unimaginable to an earlier mind. He will deal with

† This address by Dr. Stratton also appeared in *The Review* for April, 1956 (58:285).

problems altogether beyond the range of earlier society."

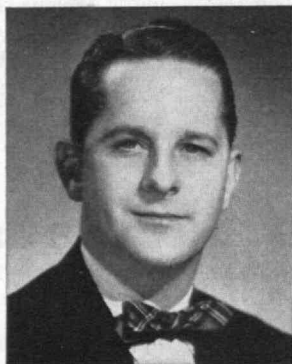
Today, we stand only halfway along the Twentieth Century. Our progress at an understanding of mastery over the physical universe everywhere continues to accelerate. As a manifestation of this progress and this acceleration automation is alerting an awareness of the fact in many of us. Through its exploitation of science, automation is playing a major part in our economy, our health, our group conduct, and in our national security. The role of governments and nations is constantly changing. Witness the international issues that have been brought to light by the peaceful use of the atom. The recent plan to sell or lease one billion dollars of U²³⁵ has raised new and unexpected problems for the minister of state, the humanist, and the technologist.

The Lesson in Changes

But have too few of us correctly gauged the lesson in these changes? Has our cultural and social progress kept pace with the accelerating tempo of material progress? Admittedly we can only speculate about social or economic structures of the world into which our children will grow to maturity. We should not be blinded out of recognition that (when once we can measure not only change, but the rate of change) their world is likely to be somewhat different from ours, to put it mildly. The issue that transcends all others is the question: "Shall our future

(Continued on page 370)

SPECIAL REPORT



Mr. WAYNE BRENENGEN NEW YORK LIFE AGENT
at MADISON, WISCONSIN

BORN: September 24, 1924.

EDUCATION: University of North Carolina, A.B.—1948.
Harvard School of Bus. Admin., M.B.A.—'50.

MILITARY: World War II—Marine Corps Aviation (Radar & Communications).

PREVIOUS EMPLOYMENT: Oct. '50 to Jan. '53—
U.S. Foreign Service, Vice Consul, Munich, Germany.
Jan. '53 to Oct. '53—Export Company, Asst. to
President. Fall '53 to Fall '55—Research Org.
Investor and Executive V.P.

REMARKS: Wayne Brenengen joined New York Life in December, 1955, and became an agent at the Company's Capital Office, Madison, Wis. An extremely personable young man with a fine educational and business background, his energetic and sincere approach to his work won him the title of Assistant Manager after only a year with the Company. In 1956, his total sales volume of over 1½ million dollars qualified him for membership in the Company's Top Club. An outstanding success already, Mr. Brenengen's future with New York Life is indeed bright.

Note

Wayne Brenengen, after only one year as a New York Life representative, is already well established in a career that can offer security, substantial income, and the deep satisfaction of helping others. If you'd like to know more about

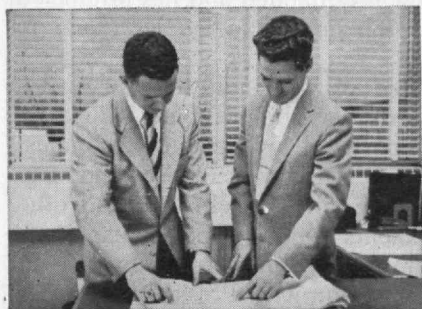
such a career for yourself with one of the world's leading life insurance companies, write:

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51 Madison Avenue, New York 10, N. Y.



"What really sold me," says Jerry, "was the way they conducted engineering. I'd expected rooms full of engineers at desks. Instead, I found all the informal friendliness of my college lab."

Gerald, an E.E., came directly to IBM from the University of Buffalo, in 1953. Starting as a Technical Engineer, he was immediately assigned to work, with two others, on designing a small calculator. The supervisor of this project was Dr. R. K. Richards, author of "Arithmetic Operation in Digital Computers." Jerry learned a great deal about computers in a very short time. Incidentally, his particular machine is now going into pro-



Assigns problems to his group

duction. As Jerry says, "It makes an engineer feel good to see his project reach the production stage—and to be able to follow it through."

Promoted to Associate Engineer after 16 months, Jerry is now the leader of a nine-man team. He assigns problems to his group for solution, approves their block diagrams and the models they build. Perhaps an hour a day goes into paper work such as requisitioning equipment for his group and reviewing technical publications, in counseling members of his team and preparing for trips to technical society meetings. Apart from his regular responsibilities, he teaches at night in the IBM school.

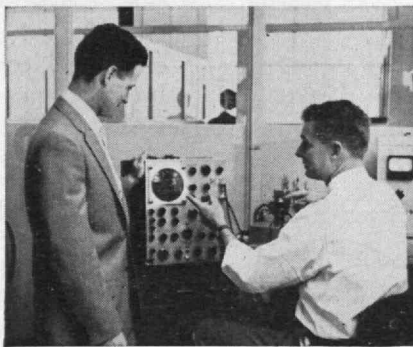
Why Jerry chose IBM

Of course, there were other reasons

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Three years ago, college senior Gerald Maley asked himself this question. Today, an Associate Engineer and leader of a nine-man team, Jerry reviews his experience at IBM and gives some pointers that may be helpful to you in taking the most important step in your engineering career.

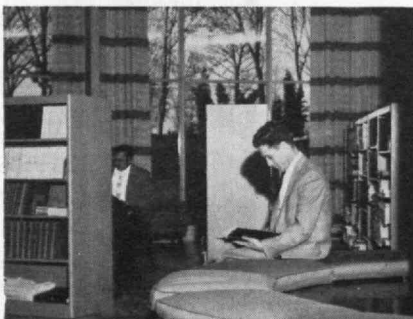
why Jerry selected IBM. He was vitally interested in computers, and IBM was obviously a leader in the field. He comes from a scientific family



This field is so new

(his brother is a mathematician) and is fascinated by these mathematical marvels which are revolutionizing man's ways of doing things in so many fields. He enjoys working on large equipment . . . and on "pulses." "It's more logical," he says. "In computer work, you can actually see things happening, which is not the case with all electronic equipment today. And it's not all solid math, either. What's more, this field is so new, that pretty soon you're up with everybody else."

Gerald has done recruiting work himself for IBM and believes he un-



Reviewing technical publications

derstands some of the college alumni's problems. "I usually begin an interview by determining a man's interest," he reports. "Then the diversity of work at IBM enables me to offer him a job which will challenge that

interest." Gerald distinguishes between two kinds of engineers—those who like to work on components, such as circuit designs, and those who are interested in the part the component plays. The latter is his own interest, which is why he is in advanced machine design. He points out that IBM is careful to take these factors into consideration—another reason, perhaps, why turnover at IBM is less than one-sixth the national average.

What about promotions?

When asked about advancement opportunities at IBM, Jerry says, "You can hardly miss in this field and



Promotion almost axiomatic

in this company. They tell me sales about double every five years—which in itself makes promotion almost axiomatic." He endorses the IBM policy of promoting from within, with merit the sole criterion. The salary factor, he remembers, was not his first consideration. While excellent, the tremendous advancement potential was of far greater importance.

Equally challenging opportunities exist for experienced engineers and scientists in all of IBM's many divisions across the country. For details, write P. H. Bradley, Room 12005, IBM Corp., 590 Madison Ave., New York 22, N. Y.

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AUTOMATION

(Continued from page 368)

generations exploit science and technology for good or for evil?" The responsibility to plant the seeds to bring about the good is squarely before us. The attitude of our adult people toward education and scholarship is a reflection of the likelihood that the good will dominate. Any complacency about the adequacy of the job we are now doing seems wholly unfounded. In too many schools much work lacks both rigor and depth. Much of the curriculum is closed-ended. Much of it lacks creativity and nearly all lacks respect for scholarship.

Two great movements are now gaining momentum in American education. One goes loosely by the term "humanizing the scientist" and the other, in the scientists' words, "simonizing the humanist." From the nontechnical colleges, as well as from the technical ones, will come our future leaders. The wisdom, breadth, and depth of understanding of both categories of citizen will be a reflection of the temper of public attitude toward science, but I share with Dr. Stratton his feeling that liberal education as presented today, has failed to keep abreast of the changing character and expanding needs of the society which it should be designed to support. All too often today's so-called liberally educated student is the product of a strictly traditional pattern that is grossly deficient in giving him a genuine feeling for the substance of science — an educational pattern that, from many points of view is outmoded and has insufficient relevance to the problems of today, let alone tomorrow.

Just as technical education should look forward to the world of tomorrow, so should liberal education. Yet unborn is an enormous inventory of technology that the daily achievements of scientists and engineers will deliver and which automation and other sociological movements will eventually exploit to maturity. To rephrase a statement made by the late Karl Taylor Compton, formerly President of M.I.T. and chairman of its Corporation, "Science and automation, creatively and humanely exploited, offer us the best chance for greater abundance without resorting to the old-time practice of taking it from others." Science is truly today's mighty multiplier. But all citizens need to be made aware of the scope and impact of science on their lives, for both its culture and its materialism. Our best machinery for doing this is our orderly process of education, from the elementary school to the university. But the whole system must continually be kept abreast of the needs of tomorrow's world.

Engineering education is in foment. The relevance of its technical content is suspect. The traditional concept of professional education by departments (whose heritage stems from a particular industry and often holds its pattern captive by industry), is being challenged as providing merely a training inadequate to give tomorrow's engineer the scope and versatility to keep abreast of science. Nevertheless, it is fair to say that engineering education is making great strides with the integration of natural and social science to

(Concluded on page 372)

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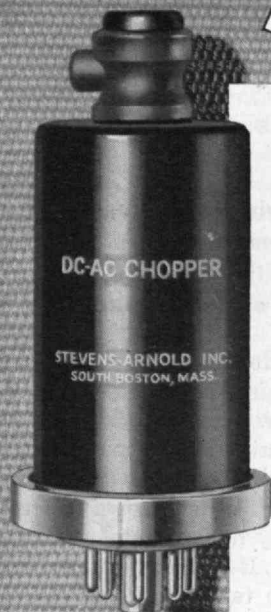
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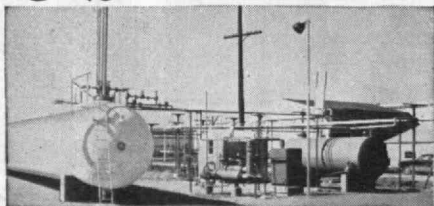
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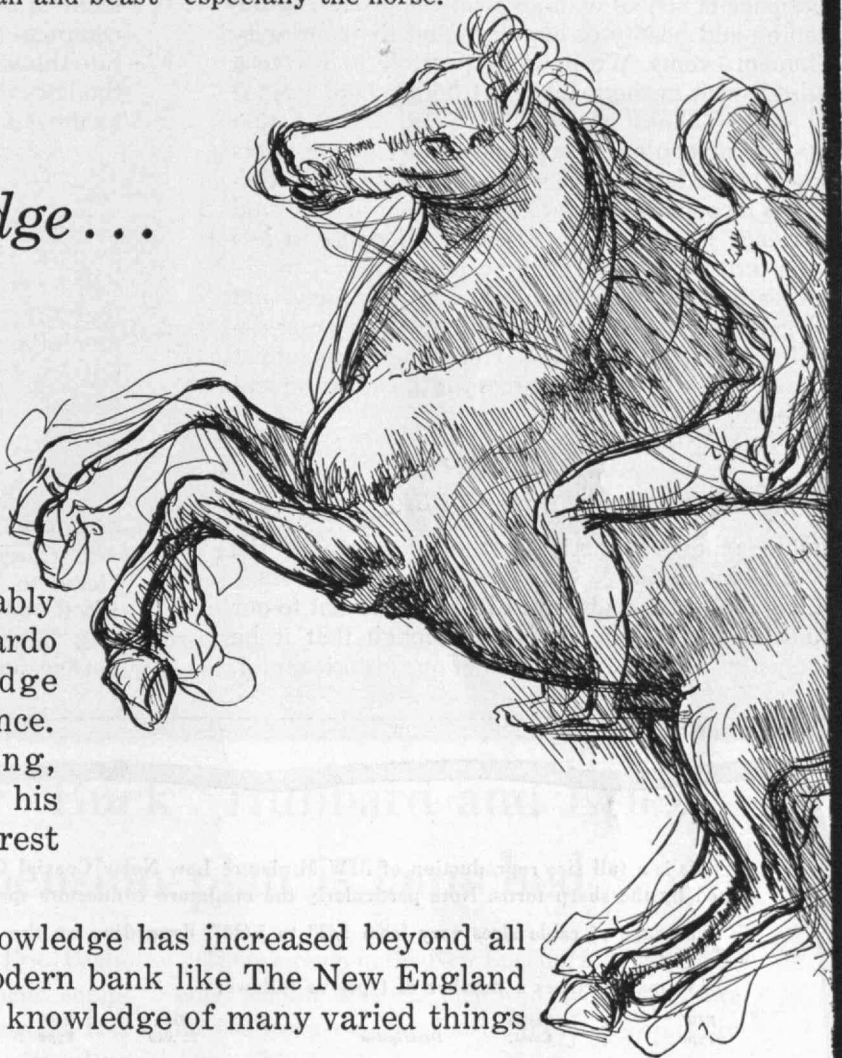
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SCIENCE IN SECONDARY SCHOOLS

(Concluded from page 358)

With the waning of classical studies have gone some of our great teachers. For many of them the history, mythology, and literature, of Greece and Rome had become part of their very lives. Few of their students would perhaps recall much detail, in later years, but they frequently came away from the experience of school with an awakening sense of the meaning and beauty of literature and the continuity of human events. We need desperately to revive a kindred spirit in the teaching of high school science and rarely — almost never — do we find it. Instruction may be meticulous and competent by teachers trained in the latest methods of pedagogy. Nevertheless it is inconceivable that a teacher whose own total experience in the study of science amounts to less than a term or two, of college can open vistas to the limitless horizons of modern physics, chemistry, and biology, or kindle in disinterested youth an eager desire for further exploration. Here begins the great wastage of our human resources for the advancement of science.

AUTOMATION

(Concluded from page 370)

provide a new synthesis for the education of the whole technologist.

Liberal education also must be held relevant to our time and our destiny. It is not enough that it be merely a straight-line projection of our historical past.

The need, as Dr. Stratton sees it, is not one of replacing liberal arts by science, but rather of restoring the proper blend of the two in depth as the doctrine of higher education. The study of the physical universe ought to be undertaken in the liberal arts colleges with the same thoroughness — and it ought to be accorded the same prestige — that the classics once enjoyed. The once-over-lightly treatment of the history or philosophy of science is not science. Even lectures on the scientific method fail to transmit a comprehension of the best known and the truly first-rate thinking about the world in which man lives and the laws that govern the material universe. They fail to show a student how far down it is to the bottom.

Intellectual Revolution

I do not despair that the goals we seek will come to pass. Man has both intellect and conscience. He will be on his way as soon as he awakens to the fact that automation is not the second or third industrial revolution, but rather a manifestation of a great intellectual revolution in the way he co-operates with nature.

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2. Gordon S. Brown, "Numerical Control—What It Means to Metalworking," *American Machinist*, 98:133-156 (October 25, 1954, No. 22).
3. "Blueprint to Milling Operation," *The Technology Review*, 58:184 (February, 1956, No. 4).

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#634A	29	Double Shields	.140"	COX-3FS- 011		70 Ohm Coaxial	.100"
#634B	29 str.	50 Ohm Two Shields	.110"	COX-4FS- 011		90 Ohm Coaxial	.125"
#634C	29 str.	Aircraft Standard	.125"	COX-3FS- 016		70 Ohm Coaxial	.125"
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ENGINEERING AS A PROFESSION

(Continued from page 354)

It gives us a relatively objective yardstick of the value of one's contribution to the economic life of the community, on the basis of which one can form sound decisions, made in the public interest, for future guidance. Again, the profit system tends to put economic power in the hands of those who have demonstrated their competence to exercise it. The incentive in the system is not the profit but the sense of social contribution, of worthy achievement it affords. This is why, despite the system's shortcomings, we believe in it. It is to be regretted that we so miserably fail to make the basis of our convictions clear.

Now the monetary motive sways the worker no more than the entrepreneur. The economic motive is not the important source of satisfaction in one's work.

The deep source of satisfaction of the industrial worker of the past was pride of craftsmanship and the sense of creativity which it engendered. Because he worked as an individual and the product was his alone, it has been taken for granted that modern organization, with its differentiation of labor, has destroyed the possibility of the worker's former pride in his output. This conclusion needs re-examination.

Half a century ago, William James in his later years wrote his essay on the *Moral Equivalent of War*. It justifies re-examination today by both industrial management and the engineering profession. James points out that, despite all of its brutality, war brings out some of the finest characteristics of the human spirit and develops some of its deepest satisfactions. War does this despite the fact that it submerges the personality of the individual in an organization to a degree found, perhaps, in no other human institution. It does it by appealing first to the soldier's sense of contribution to the social interest and second, to his loyalty to the cause he serves and to the organization which alone enables him to serve it effectively. Few, indeed, are the sources of satisfaction to the human spirit which run deeper than the sense of creativity and loyalty. Organization, far from destroying the possibility of spiritual satisfaction to the individual, can, properly used, contribute immeasurably to it. Moreover, in so doing, it can also contribute to the development of the character and the personality of the individual himself.

(Continued on page 376)

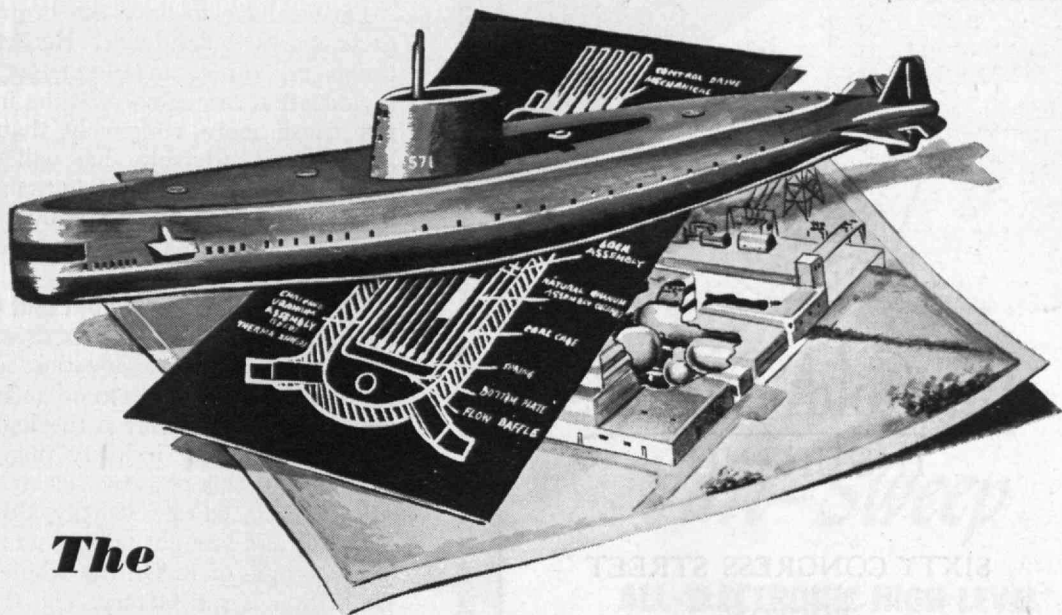


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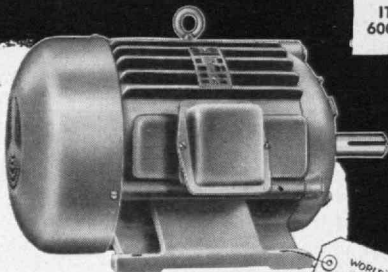


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ENGINEERING AS A PROFESSION

(Continued from page 374)

Do we have to have the brutality of war to get these spiritual dividends? Note that the important things are three: an adequately worthy cause; an organization through which the individual can serve the cause more effectively than he possibly can alone; and leadership that will guarantee the efficiency of the organization in the service of the cause and appreciation by the individual of that service and his contribution to it. Modern industry meets the specifications.

I have already pointed out that the factual achievement of the industrial revolution has been the development of a new civilization, making the possibility of culture available to all sorts and conditions of men. I assert that this is the legitimate function of industry and that industry ought to make its acceptance of this objective clear beyond all possible question. The cause is worthy, although some straight thinking and straight talking will be needed to convince people of it. On the whole, our industrial organization is satisfactory. The thing that is needed is leadership, and here we can well afford to study the methods by which the military develops morale.

An essential thing is adequate professional leadership at the operational level. In an army, this means the company officer. The first qualification for a line officer is to know how to fight; otherwise, he will never gain the confidence of his men. His abilities

(Continued on page 378)

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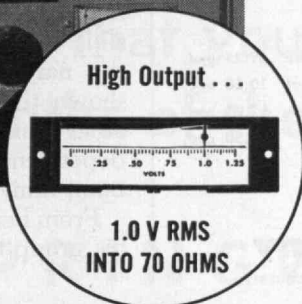
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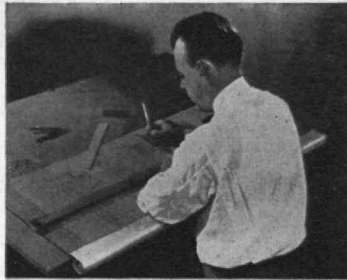
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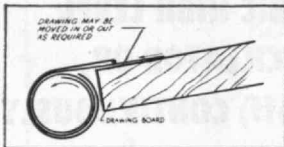


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ENGINEERING AS A PROFESSION

(Continued from page 376)

must go far beyond that, but, with that foundation once laid, military history demonstrates the practicability of building military morale.

In industry, we need this type of leadership at the operational level. Moreover, it can be furnished successfully only by the man who knows how to operate, how to produce, and that means the engineer. Mere technological competence is of course not enough, but it is essential. The temperament and basic capacities of the engineer are exactly what is needed. He can capitalize upon his reputation for knowing what he is talking about in his own field of science and engineering. The psychological importance of this can scarcely be underestimated. When the operator in the plant wants to know why this first still works under vacuum and that under pressure, the engineer can tell him with confidence and authority, and with the assurance that no one is going to contradict him successfully. This lays the psychological basis for winning the confidence of the operator and makes it possible to help him in a score of ways that lie outside the narrow area of technology itself. He can be shown the relation of his own work to that of the other members of his group. He can come to see the dependence of his contribution upon them and theirs upon him. He begins to be a member of the team.

From here he starts to appreciate the importance of his group to the work of his department, of the de-

(Continued on page 380)

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(Continued from page 378)



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partment's in turn to the over-all achievement of his company and ultimately of the company's place in the economic and social order. He becomes a member of a larger team and lays the foundation for a sense of contribution to an objective far beyond himself and of loyalty to an organization serving the larger objective. He begins to appreciate the stimulus of competition between individuals and organizations, and the importance of the contribution which this competition, properly directed, can make to the public interest. This is the sort of leadership the foundations of which the engineer can lay.

It seems needless to point out that an effort like this is doomed to catastrophe unless it is undergirded by sincerity, not only on the part of the engineer, but sincerity through and through the individual organization and industry itself. Moreover, granted the will and the necessary conditions, the picture painted is no impractical idealism. The fact is that the military have been successful in exactly this sort of thing; our chances for success are far better than theirs.

One must never forget that thousands of engineers all over the country have done, and are doing, much of this sort of thing, as individuals, in personnel training programs, and the like. The trouble is that they do not look on it as a professional responsibility.

The opportunity for a broader contribution and larger social usefulness is on the engineer's doorstep. What I have pictured is intended only as illustrative of the possibilities. The Institute is proud of the fact that throughout its 90 years of history it has recognized the importance of breadth in the practice of engineering and for many decades held outstanding leadership among engineering schools in emphasis upon the cultural component of the training it gave. In recent years, it has made every effort to strengthen this program, and is proud of its achievement. The problem, however, is a difficult one and its most serious phase is lack of interest on the part of the student. Many of our best students choose engineering because of their interest in the phenomena, the theories and the methods of science. This interest is the first qualification of a good student, but as he pursues it he all too often buries himself in an intellectual canyon over the rim of which he cannot see. Such a man may be superlatively qualified for the staff work of the engineering profession in research, development, and design, but he is clearly not qualified for broader leadership.

The extent to which this lack of interest persists through professional life is illustrated by failure to appreciate the broader achievements of fellow engineers. Thus, two of the outstanding victories of the West in the cold war were organized and carried to success by engineers. The first was the Atoms for Peace Conference in Geneva a year and a half ago under the aegis of the United Nations, run by Professor Walter G. Whitman, '17, an engineer, the Head of the Department of Chemical Engineering at the Institute. Due to the quality of his leadership, characterized by his engineering temperament and type of

(Concluded on page 382)



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ENGINEERING AS A PROFESSION

(Concluded from page 380)

mind, it proved to be the largest, most successful and most publicized activity of the United Nations, conducted without bickering in an atmosphere of co-operation and mutual confidence. The second was the settlement of the Iranian oil dispute, the basis for which was laid by Herbert Hoover, Jr., an engineer, working in the Department of State, and which was consummated under the leadership of Howard W. Page, '27, an engineer, heading up the negotiators for the Western oil companies. The success which this engineering agreement, based on mutual interest, has achieved, is attested by the fact that it is operating so smoothly that it is never in the news. Yet, few indeed are the engineers I have met who looked upon these things as engineering achievements or took pride in them as such.

The problem is difficult; what the Faculty can accomplish is limited because the student rightly shies indoctrination as the plague and considers the professor hopelessly impractical on other than technical matters. I appeal to the Alumni among you to assert your influence in these directions, for that influence, particularly with the student body, is far greater than you realize. I appeal also to the employers of engineers among you to demand from them every contribution they can make in these broader fields of activity. Finally, let me impress upon you that the primary objective of the School of Engineering at the Institute is to develop in the oncoming generation of engineers the vision and the competence to solve not only the technical problems of modern industry but to co-operate in the solution of the associated economic and social problems as well.

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ALUMNI AND OFFICERS IN THE NEWS

New Posts . . .

In addition to the 28 Alumni recorded on pages 346 and 347, other Alumni advanced to new posts include:

THOMAS L. APJOHN^{'34}, as manager of the Petroleum Chemicals Department, Mobil Overseas Oil Company . . . ERIC J. ISBISTER^{'34} and ARTHUR A. HAUSER, JR.,^{'42}, respectively, as chief engineer of the Surface Armament Division and as assistant to the vice-president for Research and Development, Sperry Rand Corporation . . . WALTER L. WISE, JR.,^{'34}, as general manager, Hand Tool Division, Sargent and Company, New Haven, Conn.

H. BRUCE LESLIE^{'38}, as assistant vice-president, Firemen's Mutual Insurance Company, Providence, R.I. . . . JOHN C. BURR, JR.,^{'40}, as supervisor, Radiation Chemistry Unit, Atomics International Division of North American Aviation, Inc. . . . LAWRENCE W. KELBLEY^{'40}, as director of manufacturing, Datamatic Corporation, Newton, Mass. . . . JULIUS P. MOLNAR^{'40}, as director of Military Development, Bell Telephone Laboratories, Inc.

JOHN F. WILSON^{'41} and SIDNEY SIEGEL^{'43}, respectively, as general manager of Marketing and as engineering manager, Metals and Controls Corporation, Attleboro, Mass. . . . ERVINE M. RIPS^{'42}, as chief engineer, Hamner Electronics Company, Princeton, N.J. . . . ARTHUR SOLOMON^{'42}, as secretary-treasurer, Southern Engineering Corporation, Hartford, Conn. . . . GEORGE S. AHMUTY^{'46} and H. EDWARD JANS^{'52}, as senior associates, Bruce Payne and Associates, Inc., Westport, Conn.

MICHAEL BURLINGHAM^{'48}, as manager of engineering, Cramer Controls Corporation, Centerbrook, Conn. . . . EZRA R. GARFORTH, JR.,^{'48}, as assistant vice-president, Philadelphia Steel and Wire Corporation. . . . DONALD M. GRAHAM^{'48}, as planning administrator of the Boston City Planning Board . . . CORNELIUS L. HUDAK^{'48}, as sales manager, Rolling Mill Division, Plume and Atwood Manufacturing Company, Thomaston, Conn. . . . HOLLIS L. GRAY, JR.,^{'50}, as vice-president, Technology Instrument Corporation, Acton, Mass.

Committees and Convention . . .

The National Advisory Committee for Aeronautics has appointed the members of its technical committees and subcommittees for 1957, which members are selected because of their knowledge, ability, and leadership in highly specialized fields. The following M.I.T. staff members are among those appointed:

JOHN R. MARKHAM^{'18}, Professor of Aeronautical Engineering, to the subcommittee on high-speed aerodynamics (reappointment); C. RICHARD SODERBERG^{'20}, Dean of the School of Engineering, Professor of Mechanical Engineering, to the committee on power plants for aircraft (reappointment); C. STARK DRAPER

^{'26}, Professor of Aeronautical Engineering, in charge of the Department, to the subcommittee on power plant controls (reappointment).

HENRY G. HOUGHTON^{'27}, Professor of Meteorology, in charge of the Department, to the subcommittee on meteorological problems (reappointment); JOSEPH BICKNELL^{'34}, Associate Professor of Aeronautical Engineering, to the subcommittee on aerodynamic stability and control (reappointment); PAUL E. SANDORFF^{'39}, Associate Professor of Aeronautical Engineering, to the subcommittee on aircraft structures (reappointment); GLENN C. WILLIAMS^{'42}, Professor of Chemical Engineering, to the subcommittee on combustion (reappointment).

NICHOLAS J. GRANT^{'44}, Professor of Metallurgy, to the subcommittee on power plant materials (reappointment); HOLT ASHLEY^{'48}, Associate Professor of Aeronautical Engineering, to the subcommittee on vibration and flutter (reappointment); ALAN H. STENNING^{'51}, Assistant Professor of Mechanical Engineering, to the subcommittee on compressors and turbines; RAYMOND L. BISPLINGHOFF, Professor of Aeronautical Engineering, committee on aircraft construction (reappointment).

RICHARD H. BOLT, Professor of Acoustics, Director of Acoustics Laboratory, to the subcommittee on aircraft noise (reappointment); CHIA-CHIAO LIN, Professor of Mathematics, to the subcommittee on fluid mechanics (reappointment); RENÉ H. MILLER, Associate Professor of Aeronautical Engineering, to the subcommittee on helicopters (reappointment).

The Institute of Radio Engineers National Convention of March 18-21 was held in New York, and the following Alumni and staff members took part in the 1957 program:

J. Warren Horton^{'14}, James K. Clapp^{'23}, Richard F. Shea^{'24}, Frank Massa^{'27}, Kenneth J. Gerneshausen^{'31}, staff, John M. Hollywood^{'31}, Willard H. Foster^{'32}, Donald G. Fink^{'33}, Frank G. Marble^{'35}, Frank D. Lewis^{'37}, Arnold P. G. Peterson^{'37}, Robert M. Fano^{'41}, staff.

Wilbur B. Davenport, Jr.,^{'43}, staff, Peter Elias^{'44}, staff, Samuel J. Mason^{'47}, staff, Robert L. Pease^{'50}, Alfred K. Susskind^{'50}, John M. Wozencraft^{'51}, staff, Joseph J. Gano^{'52}, Grant F. Sandy, Jr.,^{'53}, Elie J. Baghdady^{'54}, staff, Richard F. Lacey, staff, Eli Shapiro, staff.

Four Alumni received awards at the I.R.E. Annual Banquet during the convention. JULIUS A. STRATTON^{'23} and DUDLEY A. BUCK^{'52} won, respectively (mentioned in previous issues of The Review), the 1957 Medal of Honor and the 1957 Memorial Prize Award. Recipients of 1957 Fellow Awards were LUCIUS E. PACKARD^{'35} and WILLIAM H. HUGGINS^{'53}.

The entire program was an extensive one, and, in addition to the previously mentioned banquet, included such items as 840 exhibits, 55 sessions covering a variety of radio interests, a cocktail party,

and a women's program. The Convention was held in the recently opened New York Coliseum, taking up the first through the fourth floors completely.

Obituary

J. EUGENE FREEMAN^{'87}, June 2, 1956
EDNA W. MOODY^{'93}, December 9, 1956
PERCY H. THOMAS^{'93}, March 18
FRED H. CLARKE^{'94}, August, 1955
ALFRED V. LINCOLN, JR.,^{'95}, March 2
STEPHEN D. CRANE^{'96}, February 5[°]
RUSSELL T. STARR^{'96}, December 5, 1956[°]
ARTHUR S. DEWOLF^{'97}, February
ATHERTON H. TUCKER^{'98}, March 3[°]
CHARLES A. SCHMITT^{'99}, March 15[°]
HERMAN H. SMITH^{'99}, March 3
DAVID G. ABEEL^{'00}, October 1, 1956
LAWRENCE G. COBURN^{'02}, March 11
W. MERTON RICE^{'02}, March 26
JEROME E. STEEVER^{'02}, January 5
RALPH H. HOWES^{'03}, February 16[°]
ELMER A. HOLBROOK^{'04}, February 20[°]
HENRY W. STEVENS^{'04}, March 14[°]
CARL A. HOUCK^{'05}, January 22[°]
EDWIN M. LINES^{'05}, February 27[°]
WILLIAM F. ENGLIS^{'06}, March 23
ATTWOOD E. RIPPEY^{'06}, January 6
WILLIAM S. LUCEY^{'07}, February 28
MASANO YENDO^{'07}, 1942
BERNARD S. LESLIE^{'08}, February 14[°]
MATTHEW POROSKY^{'08}, March 3[°]
HORACE L. CLARK^{'09}, March 3
CHARLES C. CLARK^{'10}, March 23
BRADLEY JONES^{'10}, March 8[°]
LOUIS R. GOLDEN^{'11}, February 19[°]
ERNEST NICHOLSON^{'12}, February[°]
CHARLES F. HAGLIN^{'13}, March 4
HENRY C. SHEILS^{'15}, March 22
EARL A. EDWARDS^{'16}, December, 1956[°]
WILLIAM F. HOWARD^{'16}, December 4, 1955
HAROLD E. WHITE^{'16}, January[°]
CHARLES E. LOW^{'17}, date not stated
JOHN E. DE MERITT^{'17}, October 29, 1956
JOHN H. CHASE^{'18}, February 7
EDWIN M. NEWTON^{'18}, February 13
JOHN A. SARGENT^{'18}, January 8, 1954
DWIGHT P. SPENCER^{'18}, September 24, 1956[°]
WILLIAM H. SCHIMMELPFENNIG^{'20}, February 4
SIMEON E. TRAVIS, JR.,^{'21}, March 10
MARCUS A. MCCLURE^{'22}, December 1, 1954
HAROLD A. STOCKBRIDGE^{'22}, February 22[°]
JOHN E. BASTILLE^{'23}, February 15[°]
GEORGE L. BROWNING^{'23}, November 27, 1956
JOHN B. CARPENTER, JR.,^{'23}, April 25, 1956[°]
JAMES W. PRATT^{'23}, February 20[†]
JOSEPH B. SAUNDERS^{'25}, March 5
STEPHEN F. SPENCER^{'26}, March 5[°]
MILAN F. TANDY^{'28}, February 13
SAMUEL P. BAUM^{'33}, October, 1956[°]
LEWIS H. D. FRASER^{'34}, November 6, 1956
ALBERT C. SCHAEFFER^{'36}, February 1
PAUL W. STEVENS^{'37}, March 6[°]
DALE S. GILLETTE^{'55}, December, 1956[°]
[°] Further information in Class Notes
[†] In Puget Sound notes

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Boston Luncheon

The M.I.T. Boston Luncheon Club meeting was held on February 28 at the Union Oyster House. Chairman Dillon introduced the head table guests Oscar Hedlund, Roscoe Sherbrook, and Fearing Pratt. Jack Woods, M.I.T. Sailing Coach, then made a few introductory remarks concerning sailing at M.I.T. He said about a thousand students use the sailing facilities at the Institute. In the last three Olympics, the United States representative in individual small boat sailing came from M.I.T. This selection is made as a result of national competition, so it is certainly a credit to the Institute to have a representative win the competition for the last three Olympics.

Jack Woods then introduced John Marvin, Class of '49, who represented the United States at the Olympics in Australia during 1956. The remainder of the meeting consisted of John's description of the type of sailing and the competition encountered during the series of races in which John ended up in third place. Along with the talk, John showed some slides of the boats used and some of the other competitors in the sailing races. — C. VINCENT VAPP'48, *Secretary*, 240 Sydney Street, Cambridge, Mass.

Cleveland

One of the most successful Ladies'-Night Meetings was held Thursday, February 14, at the University Club in Cleveland. We were very honored to have as our speaker Dr. Pietro Belluschi, Dean of the School of Architecture at M.I.T., who gave a very interesting illustrated talk on "Homes of Today." The evening started with a cocktail hour followed by dinner served at tables seating approximately eight people at each. This was a change from our formal U-shaped table, but added to the friendliness prevailing during the evening, permitting the members and their guests to group together. Over 130 people were in attendance, a few of whom were guests of the Cleveland Club and were members of the American Institute of Architects. A great deal of credit for such a successful evening should be given to our Club President, Floyd Stewart, and the members of the Executive Committee, all of whom worked as a team to put the evening across.

Our final meeting for this winter season was planned for April, and was thereby a Stag Night at which the annual business was conducted. In addition to the election of the officers of the Executive Committee for this next year, a discussion on possible changes in the Constitution were made in order to better equip our Club to continue its present high level of local activity. — JAY P. AUWERTER'38, *Secretary*, Atlantic Automatic Company, 18502 Syracuse Avenue, Cleveland 10, Ohio.

Cuba

The first "Weekend in Havana," arranged by the M.I.T. Club of Cuba, which took place February 23-25, was attended by a total of 125 Alumni and their wives, including a delegation of 48 visitors from the United States and Mexico, headed by the president of the Alumni Association, T. T. Miller'22, and Mrs. Miller.

On the morning of Saturday, the 23rd, the program opened with a tour of "old and new" Havana, followed by an assembly in the Rum Havana Club patio on Cathedral Square, and luncheon at the Tropical Gardens where ladies and gentlemen visitors received, respectively, porcelain ash trays and steins with the M.I.T. initials as a souvenir of the occasion. On Sunday, the 24th, the Gala Banquet was held at the Habana Yacht Club with attendance of 101; and the next day members of the M.I.T. Club escorted their guests to Varadero Beach for a buffet luncheon at the Kawama Hotel.

Judging by the many kind and appreciative comments of our visitors, this initial "Weekend in Havana" was a success from their point of view and certainly it was so regarded by members of the M.I.T. Club of Cuba that highly praised the magnificent leadership of their President G. C. Docal'44, who, with Vice-president R. Laredo'44, Secretary S. Heisler'48, Treasurer J. E. Chibas'31, and the members of the organizing committee, made the gathering a successful one. We sincerely hope that we may arrange similar reunions for Alumni visitors at intervals of two years from now on.

Our members felt particularly honored in having present, in addition to President Miller, three former presidents of the Alumni Association: Harold Bugbee'20 of Boston, George Dandrow'22, and Hugh S. Ferguson'23 of New York, and H. E. Lobdell'17, Executive Vice-president of the Alumni Association, and Arturo Ponce Canton'22 of Mérida, Yucatan, Mexico. Two prizes were awarded: to Floid M. Fuller'06, of Bethlehem, Pa., as the 'senior Alumnus present'; and to Carroll D. Steele '08, of Duluth, Minn., the Alumnus who came the farthest to attend.

Other Alumni visitors included: Kenneth P. Armstrong'10, of Opa-Locka, Fla.; Richard M. Catlett'17, of Richmond, Va.; William L. Dennen'17, of Scranton, Pa.; Ralph A. Cartwright'19, of New York; Edward I. Mandell'21, of Miami Beach, Fla. William J. Sherry'21, of Tulsa, Okla.; Cecil H. Green'23, of Dallas, Texas; H. C. Miller'23, of Richmond, Va.; G. Raymond Lehrer'24, of Boston; Robert J. Joyce'28, of St. Louis, Mo.; Fred N. Dickerman'30, of Atlanta, Ga.; John W. Hoover'32, of Coral Gables, Fla.; William H. Mills'34, of St. Petersburg, Fla.; Peter deFlorez'38, of New York; Scott J. Hoehn'47 and Donald S. Whitmore'51, of Miami, Fla.

The members of the M.I.T. Club of Cuba participating, besides the officers already mentioned, were: Pablo Beola'14, Antonio H. Rodríguez'21, Miguel Améz-

aga'24, Walter D. Siddall'25, Gaspar Vizo-so'31, Hari Cruz Bustillo'32, Modesto Ulloa'32, Rafael Sanchez'33, Julio Ulloa'33, Pedro J. Mari'37, Hector Hoyo'38, Jose A. Villamil'38, Antonio Arias'39, Sergio Martínez'40, Alfredo Pedraza'41, Alberto O. Villamil'42, Gustavo Calleja'43, George W. Potts'43, Federico Lindner'45, Fausto G. Hidalgo'45, Augustin D. Reyes'48, William S. Chambers'50, Juan M. Navia'50, Daniel Kokiel'53, Manuel Alarcón'54, Marcelo Fernández'54, Eduardo L. Elizondo'55, Mariano Lora'55. — ANTONIO H. RODRIGUEZ'21, *Review Secretary*, Concordia 61, Havana, Cuba.

Fairfield County

On March 4, 42 Alumni and guests attended the Club's dinner meeting at the Clambox in Westport and heard a highly interesting and informative talk by Professor B. Alden Thresher, Director of Admissions at the Institute. In an exceptionally articulate and entertaining manner, Professor Thresher brought us all up to date on the college admissions situation. He pointed out that with college enrollments moving up sharply and the great population wave of war babies approaching, the pressure on the college admissions office is going to become more and more difficult. Due to the crowded conditions in most colleges, the general competitive level will continue to move upward, and the "great sorting out" process will intensify. Several of the factors that enter into selection of the most able students to fill the limited places available were reviewed. The trend is to place more emphasis on over-all ability, less on the subject matter pattern followed in high school. A number of very helpful points were outlined for the guidance of parents in assisting their children to prepare for admission to college. The enormity of the task facing the admissions staff of a big college was illustrated by some figures pertaining to the present freshman class at M.I.T. Approximately 18,000 prospective students were interviewed by someone associated with the administrative staff. About 6,000 filed a preliminary application, and 3,500 filed a final application. Then 1,900 were admitted and about 900 showed up. Professor Thresher added that as registration day approaches, he keeps himself ready to take off on short notice just in case all 1,900 should show up. The talk was followed by a very lively question period which was still going strong at the close of the meeting, proof of the timeliness of and broad interest in the subject. I feel certain it is safe to say that all those present found this to be a very enjoyable and profitable meeting.

The Alumni present included Rex B. Beisel, Jr.'42, Donald L. Botway'49, Sterling G. Brisbin'50, J. Barton Chapman'35, Samuel E. Cotter'24, Elmer W. Crouthers'55, Curtis D. Cummings'32, Robert Curtis'42, T. Bailey Curran'29, Albion Doe'20, C. Philip Epifano'39, Richard E. Evans'32, Robert W. Gaines'39, Alfred J.

Gallucci'50, William C. Gilman'22, Roland D. Glenn '33, Randall Goff'51, William T. Leete'34, Prescott H. Littlefield'24, Charles H. Lucke, Jr.'34, Charles W. Maschal'22, Gilbert C. Mott'37, Mirko V. Paneyko'29, Cason Rucker'35, Anthony R. Savina'30, Philip W. Skove'48, Kenneth Smith'27, Robert H. Smyth'28, Samuel R. Spiker'25, Oswald Stewart'39, Robert Swain'33, Paul E. Tausche'49, Gordon C. Thomas'36, Lawrence W. Trowbridge'22, William H. VanDusen'24, Edward H. Wells, Jr.'27 and son, Laurence J. Winik'43, Edwin S. Worden, Jr.'31, and Abraham I. Zimmer'39. — ANTHONY R. SAVINA, 30, *Secretary*, 79 Ledge Lane, Stamford, Conn.

Hartford

The M.I.T. Club of Hartford held a very interesting meeting on the subject of atomic energy and what it means to Connecticut. For our speakers we had a radiation health physicist from the Connecticut Health Department, Mr. Richard Heubner. Also on the program was Mr. D. Switzer of the Hartford Electric Light Company.

A very interesting discussion was had concerning both the radiological hazards to people and resources due to the advent and increasing use of radioisotopes and nuclear energy in the State of Connecticut. Mr. Switzer described, with films, the Yankee Atomic Power Plant that is being constructed at Rowe, Mass. A very lively discussion period followed the speakers, ranging in scope from the hazards involved in dental X-rays to steam generation in a nuclear reactor. It is interesting to note that a great deal of concern was expressed over the ability of M.I.T. men concerned with things radioactive to have their future heirs attend the Institute. They were put at ease by the radiation health physicist who explained the dosage limitations attendant to safe living.

Our next meeting was scheduled to be a mixed dinner-dance in April. — EDWARD D. KANE'47, *Secretary*, The Cuno Engineering Corporation, Meriden, Conn.

Kansas City

During the Christmas holidays, the M.I.T. Club of Kansas City had a highly successful luncheon meeting for M.I.T. students and their fathers. The total attendance was 55. The Alumni particularly enjoyed meeting the students and hearing firsthand about the 1956 version of student life. We can only hope that the students and their fathers were as much impressed with our nostalgic recollections of Tech in the "good old days" of "aught-eight to forty-eight."

Our guest list of students was as follows: J. I. Frederick'60, R. J. Warburton'58, F. F. Huppe G, J. N. Snodgrass'59, E. J. Irwin, Jr.'58, J. E. Spencer'60, G. L. Giesecke'60, J. W. Hendren'59, R. K. Ankron'60, J. D. Larson'57, J. D. Roberts'60, B. P. Caldwell G, P. B. Carberry'58, J. W. Bulkley'60, W. G. Daly, Jr.'58, W. J. Darr'59, W. D. Pugh'57. We thank each of these boys and their fathers for giving us such an enjoyable afternoon.

Our program was simple but effective. Bill Pugh'57 and Joe Hendren'59 each

gave us ten-minute talks on new developments at M.I.T. We countered with short talks by two of our members. Dick Wheeler'25 and Bart Hakan'42 spoke briefly on the qualities and skills which young engineers must develop after completing their formal education. We also distributed to the students a list of concerns in the greater Kansas City area interested in considering M.I.T. students both for summer jobs and permanent employment. We ourselves are rather impressed at the industrial and technical growth of the greater Kansas City area, and wished to pass on to the students at least a partial listing of the opportunities here.

Our February meeting took on a little different note. We were pleased to be able to invite the Alumni and wives to meet Professor and Mrs. Erwin H. Schell. We had a delightful gathering at Milleman's for cocktails and dinner. Those attending were: Mr. and Mrs. John B. Bachofer, Mr. and Mrs. F. Bonder, Mr. and Mrs. John R. Brown, Jr., Mr. and Mrs. Robert L. Brown, Mr. and Mrs. Robert V. Cadieu, Mr. and Mrs. B. J. Duffy, Jr., Mr. and Mrs. J. Warren Evans, Mr. and Mrs. E. E. Frye, Mr. and Mrs. Barton L. Hakan, Mr. and Mrs. W. F. Hyde, Mr. J. C. Irwin, Mr. and Mrs. F. W. Larson, Mr. and Mrs. Fred C. Lehmann, Mr. and Mrs. E. J. Martin, Jr., Mr. and Mrs. Richard Muther, Mr. and Mrs. Norman F. O'Shea, Mr. and Mrs. L. A. Reid and guest Mr. Spear, Mr. and Mrs. Amos L. Roberts, Sr., Mr. and Mrs. Frank Schwoerer, Mr. and Mrs. Raymond H. Starr, Mr. and Mrs. G. G. Perry, Mr. Wheeler.

Professor Schell's talk was thoroughly enjoyed by all. Each of us probably had different reasons that we found for our own particular enjoyment. He spoke on the growth and development of the Institute and the need for this growth to keep pace with expanding industrial knowledge. His "brief summary of the pertinent conclusions from the Institute's 672 unclassified research projects" was a marvel. His audience was impressed with the clarity and simplicity to which these complicated studies can be reduced when "abstracted with the management viewpoint in mind." His talk was a very nice blend of humor and information. One of the ladies was heard to remark that he really should devote at least a portion of his time for writing for the *New Yorker*. We thank Professor and Mrs. Schell for coming to Kansas City for a visit with us. — B. J. DUFFY'10-44, *Secretary*, Standard Oil Company, Sugar Creek, Mo.

New York

The spring dinner meeting of the Long Island Section of the M.I.T. Club of New York will be held at the Knickerbocker Yacht Club, Port Washington, L.I., on May 10. The guest speaker, Alexander Korol of the Center for International Studies, M.I.T., will present a comparison of education in Russia with that of the United States. Color slides will be used to illustrate his talk. This affair has been planned for a Friday night so that husbands and wives can attend together. For a "social" of good fellowship, call Oliver Hoag'35 at Port Washington 7-7212 for reservations.

The Long Island Section is now formulating plans for their eagerly awaited Annual Beach Party, to be held in July. As in the past, Gilgo Beach Pavilion, with its exclusive club facilities, located adjacent to Jones Beach, L.I., will be the scene of a full day's festivities.

The Westchester Section of the M.I.T. Club of New York will hold its Annual Golf Party at the Scarsdale Country Club on June 4. This stag affair will run for the entire day, with dinner and guest speaker culminating the day's events. David Buchanan'31, Chairman of this function, is hoping for fine weather and a good turnout. Swimming and bridge are available, as is golf with several awards for high and low score.

The M.I.T. Club of New York cordially invites you to join its group. By applying now for membership, your fee entitles you to many benefits, including use of the Club quarters, charge accounts at bar and dining room, class and industry get-togethers, bi-monthly Newsletter, listing in the Club Directory, Placement Counseling Service, and mailings on all the various Club activities. Applications can be obtained by writing to M.I.T. Club of New York, Hotel Chatham, 33 E. 48th Street, New York, N.Y. Among the groups who used the Club facilities for parties during the month of April were the Classes of '33 and '49.

The M.I.T. Club of New York offers its Club quarters to you for parties and meetings. We will be open during the summer months, and our rooms will be air conditioned for your comfort. You can contact Miss Ritter, M.I.T. Club of New York, 33 E. 48th Street, N.Y., for reservations. — HARVEY KRAM'42, *Secretary*, 101 Barnyard Lane, Roslyn Heights, L.I., N.Y.

Northern New Jersey

A special meeting of the Board of Governors was held on February 19. This meeting heard the reports of the Future Plans Committee on programs, and on membership and attendance. These reports covered surveys made during the past three months. The results of these surveys will be applied in the coming year to make the Club of more value to more Alumni in the Northern New Jersey area.

The April meeting of the Club featured a movie and talk on the SAGE project of the Lincoln Laboratory of M.I.T. — ROBERT M. GOULD'45, *Assistant Secretary*, 15 Wellington Road, Livingston, N.J.

Puget Sound

Eighty-nine Alumni, wives, and guests attended our last M.I.T. Club meeting on March 5. Although one of our speakers, Mr. Ted Jones, was unable to participate, the program was one of the most successful that we have had. Mr. Muncey skillfully blended authoritative fact with humorous incident to the complete interest and delight of everyone.

We are very happy to announce that Mr. J. A. Stratton will be our speaker at the next Club meeting tentatively scheduled for May 7.

We regret to report the death of James W. Pratt'23 on February 20, 1957. Mr.

Pratt was one of the early leaders of the M.I.T. Club of Puget Sound, a past president, and was continuously active in its functions. He was currently a member of the Finance Committee. Mr. Pratt was an active leader in the Northwest, and his loss is greatly felt by the community. — **WILLIAM D. SEWALL**'48, *Secretary*, 6634 White-Henry-Stuart Building, Seattle 1, Wash.

Schenectady

During this reporting period the Club has continued its policy of monthly informative luncheon meetings. These meetings are held at the Edison Club in the community of Rexford just outside of Schenectady. It is the purpose of these meetings to bring Alumni together and have an interesting guest speaker. Diversity of subject matter is the primary goal. The January 8 luncheon meeting brought together our largest group of the year. Dr. R. H. Doremus of General Electric's Research Laboratory was the guest speaker. Dr. Doremus spent two years studying in England on a Fulbright scholarship. He presented his views in comparing American and British educational systems. A spirited discussion followed.

The annual dinner meeting of the Club was held January 30, 1957, at the Locomotive Club in Schenectady. This custom of having a noted member of the M.I.T. faculty address the Club is very popular. This year Professor Hurd C. Willett of the Department of Metallurgy honored us with his presentation of "Seasonal Weather Forecasting, Present Status and Prospects." Dr. B. W. Roberts was chairman of the event. Dr. and Mrs. E. H. Jacobsen, Jr., acted as hosts for the evening. At the March 12 luncheon meeting, Dr. John Fisher of General Electric's Research Laboratory discussed a fundamental problem relating to basic research. Dr. Fisher had recently completed an analysis of the origin of industrial research in the United States. His theme was, "Basic research, who does it and why? Who, if anyone, finds basic research profitable in this day and age of rapid economic growth and unheard of rapidity in the utilization of new technical knowledge?" — **E. R. BARRIERE**'49, *Secretary*, 211 First Street, Scotia 2, N.Y.

South Florida

Our last dinner meeting was in the Las Americas Room of the McAllister Hotel in Miami. The program included a showing of the sound and color movie, SAGE, which described the M.I.T. Lincoln Laboratory's work on continental air defense, a display of magic tricks by your secretary, and some musical moments by Past-President Ed Mandell'21. Those who stayed until the end also got to see the somewhat amusing film, "The Social Beaver," on life at Technology. In addition to Club officers, we were especially happy to see Dr. and Mrs. O. Whitmore Burtner'31, Mr. and Mrs. Robert Cook'21, Mr. and Mrs. Sidney Mank'37, Mr. and Mrs. Edward I. Mandell'21, Mr. and Mrs. Richard L. O'Donovan'27, Mr. John J. Ostlund'35, Mr. and Mrs. Frederick Segal'51, Mr. and Mrs. Lester White'12, and

Colonel Cecil G. Young'23.

Instead of a February meeting, members of the Club attended the first "Week-end in Havana" which was so beautifully planned by the M.I.T. Club of Cuba. Kenneth Armstrong'10, our Club president, Scott Hoehn'47, Donald Whitmore'51, Mr. and Mrs. Edward Mandell'21, and Mr. and Mrs. John W. Hoover'32 thoroughly enjoyed the visit to Cuba.

The Club was saddened by the death of one of its members, Major John S. Arend'42, in an airplane crash on January 15. Major Arend was a navigator-instructor stationed at the Homestead Air Force Base, Fla., and was one of four officers in a B47 strato-jet bomber which crashed and exploded while attempting a landing at the Base. Memorial services held in the Base Chapel on January 17 were attended by Kenneth P. Armstrong'10, Club President, and Irving Peskoe'39. Major Arend's survivors are his wife, Bonniejean, a daughter, Patricia, age four-and-a-half, a son, James, age three-and-a-half, and his parents, Mr. and Mrs. F. Spencer Arend of Newtonville, Mass. The senior Arend is an M.I.T. Alumnus of the Class of 1910. — **DONALD L. BROWN**'51, *Secretary*, P.O. Box 724, Coral Gables, Fla.

Washington

About 75 members and guests attended our last dinner meeting held at the Cosmos Club on January 24. Our special guests at this meeting were Professor and Mrs. Erwin H. Schell. Professor Schell spoke to us on "Recent Activities at M.I.T." He is known to most of us as the head of M.I.T.'s School of Industrial Management and Course XV, Business and Engineering Administration. Professor Schell retired in 1955 and is now professor emeritus and lecturer. He is also a noted author, having published numerous articles and periodicals in his field, has served as a consultant to the Department of State in 1944, was awarded the Gilbreth Medal by the Society for the Advancement of Management, is a member of the Corporation of Simmons College, and is a director of Keystone Custodian Funds, Inc. Following the talk a movie was shown on the SAGE (Semi-Automatic Ground Environment) System of continental air defense, designed and developed by M.I.T.'s Lincoln Laboratory.

The next meeting, scheduled for March 28 at the Cosmos Club, was our annual Ladies' Night. Our guest speaker was Myrtle Cheney Murdock, mother of John Murdock'41, and wife of the former Representative from Arizona. She is a noted author and lecturer on the Capitol, an expert on "Statuary Hall" in the Capitol. — **CHESTER N. HASERT**'41, *Review Secretary*, 1300 N. Scott Street, Arlington 9, Va. **DOUG COOK**'50, *Assistant Review Secretary*, 4305 Rosedale Avenue, Bethesda, Md.

Western Pennsylvania

A dinner dance, almost an annual affair, was held by the M.I.T. Club of Western Pennsylvania. The affair took place at the University Club of Pittsburgh on March 2, 1957, and it was a tremendous success. Eighty-six people attended,

and many members claimed that it was the best turnout they had ever seen for a regular Club function. Our Club recommends an affair which includes wives or lady friends to really bring out the membership.

Our formula for a pleasant evening included a snappy advance announcement, a cash bar, a full-course fried chicken dinner, and dancing to the music of a popular local orchestra. — **STANLEY KASPER**'48, *Secretary*, 625 Morrison Drive, Pittsburgh 16, Pa.

CLASS NOTES

1891

Here is another delightful letter from our dear fellow out there on the Pacific Coast, Francis Bradford Choate. He began at Salem, Mass., commuting to old Technology on Boylston Street for his start. His working life took him to the great coming cities of the Midwest, Rocky Mountain and West Coast areas, and finally to Salt Lake City as general freight agent of the Union Pacific Railroad Company. At 70 he retired to California (at which point, looking out on the waters of the Pacific, he writes this charming, exuberant letter to you, dear men), and is now on the threshold of his 90th year. What a man!

"Dear Channing: Your letter of March 29 received, and your gracious one of August 6 also. I am ashamed I have not answered before. First, I did not know what to say to your letter of March as I have nothing to write that is of interest to Tech men, except things foreign to their professions. I was a day scholar coming from Salem every day and so did not get well acquainted with any of them; of course I must have sat near you, and why I did not feel your charm before I cannot see, unless at that time you had not acquired it. Do you remember Professor Wheelock in English? We had a lesson in deduction, I think, and some wag (I am sure it was not you) put on the blackboard as follows: 'A goat has whiskers, Professor Wheelock has whiskers, therefore, Professor Wheelock is ——?' The good Professor, as I remember, ignored this crude wit.

"I was interested in the article written by Robert S. Ball of Cambridge, England, April 1955 Review, referring to Professor Morse. I suppose he means Professor Morse of Salem, who was, a very dear friend of my father, Honorable George F. Choate, judge in Salem for 35 years. I knew him and his children well as they lived near us, and I remember well his famous collection of Javanese china for which he built a room on his house, and which he afterward sold for \$100,000, I think, sometime in the 1880 decade. He was in Japan for years and was partly instrumental in bringing over the Korean students in 1884; and one he took under his wing, a cousin of the king, a man named Yu-Kil-Dinn, was the brightest boy (or man—he was 22 years old) I ever knew. He studied most of the time. I went to summer academy at South Byfield with him. He afterward was called home, and we corresponded regularly for a year, then

no letters. He was beheaded because he had cut his queue and adopted modern dress, and so progress is rewarded.

"Perhaps since you are a clergyman and live on the beautiful Hudson, you may know my dear friend, Reverend Floyd Baker Van Keuren, who was rector of Episcopal Church at Irving on Hudson for some years, now retired at Kent County. He wrote a book called *The Game of Living*, published by Charles Scribner and Sons two years ago. Very good and interesting. This letter is long enough and not much you are interested in. I thank you for your very kind thoughts and your interest. I will write again later and give you my Carmel address as we are returning there next month. We have just sold here — it is too noisy — and I will go back to Carmel by the sea, where the artists paint and the tourists play, and the beach is gorgeous, and the old folks live in peace far from the madding crowd. As I wrote in my letter to Gorham Dana in April 1955, it is the waiting room for heaven, and so, my dear Channing, adieu for the present, and my kindest thoughts to you and yours. Fraternally, Brad Choate, 775 Edgewood Road, San Mateo, Calif."

Turn back, dear fellows, to the letter he wrote for the Review of April 1955. It was used by Gorham Dana, then secretary of the Class. Gorham, the gracious, lovely character who did so much for us all!

The following notice is from Alumni Office. Change of address: Walter E. Hopton; old address, Syracuse, N.Y.; present address, Brigham Hall Hospital, Canandaigua, N.Y. — WILLIAM CHANNING BROWN, *Secretary*, 15 Forest Avenue, Hastings-on-Hudson, N.Y. Summer address: Littleton, Mass.

1893

We were pleased to receive a note from Cadwallader Washburn in Brunswick, Ga., telling us that he is "still in harness," and hopes to attend the next reunion. He sends greetings to his classmates. Cadwallader Washburn was tendered a reception at the Atlanta Art Association Galleries on October 28, 1956, in honor of his 90th birthday, at which time there was an exhibit of his etchings and paintings. The etchings in this group were representative of the artist's travels, and were made either directly from the subject, or from nature, without preliminary sketches. Since 1940, he has made his home in the United States where he is concentrating on painting. Some of the paintings may be found in famous museums and art galleries of the world, among them the British Museum and the Victoria and Albert Museum in London; the Musée du Luxembourg; Bibliothèque Nationale in Paris, the Rijks Museum in Amsterdam; the Honolulu Academy of Arts; the Texas Institute; the Philadelphia Museum of Fine Arts; the Minneapolis Institute of Art; the National Gallery; the Library of Congress; the Corcoran Art Gallery; the Metropolitan Museum of Art and the New York Public Library, both in New York City. Cadwallader Washburn has been honored by various societies and academies. Notably these include: The Gold

Medal at the Panama Exposition of 1915; the National Academy of Design, 1940; the Louisiana Society of Etchers; the Society of American Etchers; and the American Federation of Arts.

In a special convocation at the University of Michigan in October 1956, our classmate Emil Lorch, Professor Emeritus, was awarded the honorary degree of doctor of architecture. Emil Lorch went to Ann Arbor in 1906 to help establish architectural instruction as professor-in-charge. He tells us about attending a convention of the American Institute of Architects in Boston a few years ago when he found that the Institute and the city had developed tremendously since his student days and "both remain leaders of their categories." He reports that the Boston Symphony orchestra is an annual and warmly-welcomed visitor at Ann Arbor when they give two concerts during the season. Classmate Lorch reports that his activities are entirely historical, collaborating with the American Institute of Architects Committee on the preservation of historical buildings and with the Historical Society of Michigan. He sends cordial greetings to his classmates.

President Page advises that he recently called on Charles Spofford and found him in good spirits. He is confined to his room. President Page feels sure that Charles would be glad to receive notes from any of his classmates. His address is c/o Mansion Rest Home, 30 Englewood Avenue, Brookline 46, Mass. — GERTRUDE B. CURRIE, *Assistant Secretary*, c/o Fay, Spofford and Thorndike, Inc., 11 Beacon Street, Boston, Mass.

1895

There is evidence at hand that some of our mates are experiencing a little difficulty in adjusting themselves to conditions surrounding their retirement. While Dickerman of Charlottesville, Va., has built a new home, and is successfully adapting his family to the new environments, he is lamenting his inability to prepare for his planting operations for gardening this coming spring and summer. However, eventually he may be able to make the grade.

Louis Abbot has a different problem to cope with. Originally domiciled in Maine, he sought a milder climate and landed in Duxbury, Mass. Upon further thought he still looked for a warmer climate and migrated to Dunedin, Fla. His problem now, we understand, is a matter of mental therapy in adapting himself to his new acquaintances. We believe he will eventually make the most of his present situation and be contented with his fruit-growing projects and his community interests. Our best wishes for his Florida integration. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

1896

Stephen D. Crane's son wrote to the Alumni Association that his father died February 5 at Asbury Park, N.J. Frederick R. Starr writes from Madison, N.J., on the addressed reply card: "My father, Russell T. Starr, passed away December 5, 1956, after a long illness. He had been

retired for some time and had a full life, so that we were fortunate to have him with us as long as we did." He was answered by letter expressing the sympathy of the Class.

Henry S. Baldwin "has been actively interested in the rebuilding of our public library and has contributed \$10,000 for a Historical Room to house his fascinating collection of historical maps, books, pamphlets, and pictures, principally relating to Swampscott.

"Mr. Baldwin has always been interested in civic affairs, having held many outstanding offices. He is now a member of the Vestry of the Church of the Holy Name and is participating in the construction of a new church school chapel adjoining the church. He has given many valuable suggestions, as he has been identified with the original construction of the church, as well as the addition of the two bays in 1941 and the recent addition of the Chapel School this year."

Charles E. Batchelder writes, "It was my ambition while in Tech to follow up my chosen profession of electrical engineering, but, unfortunately, bad health for some 20 years made that impossible, so that I drifted into my father's mercantile business, much as I hated it. Then, in 1919 the future outlook for that business appeared so bad that we decided to fold up and liquidate. Since then I have made a study of statistics in connection with the stock market and was an active trader for a while. We made many trips across country, the main object usually being to see our son, Dean, in California. He is a 1928 graduate of M.I.T. and has a master's degree from California Institute of Technology in electrical engineering. He was with the Lane-Wells Company for 20 years, then with Dresser Industries, and a few months ago was engaged by North American Aviation for highly secret research work.

"In 1947 we decided to move to California to be nearer to our son and his family. We first settled in Palm Springs and lived there for eight years before moving to Santa Ana to be nearer to him. He has a wife that we think a lot of and two lovely daughters. I still play the piano every day and compose music — for my own amusement only. And we take short trips in the automobile frequently; just now are planning a trip to Death Valley. This part of the country is well supplied with interesting places to go. We are contemplating a trip East this coming summer."

From Carmel, Calif., comes word of Ida M. Curtis, who was interested in oil painting while teaching in Boston, that she still keeps up her interest. She was graduated from Cornell in 1882 before she came to M.I.T. for special courses. Jack Eynon is still in San Diego: "Advancing years (84) somewhat curtail activities and in a measure curb the desire to travel, although I still drive a car and make a brave attempt to perhaps kid myself into believing that I can keep up with much more youthful companions. It is stimulating to at least try. I am hoping that some future Class reunion, like the 50th down on the Cape, making the trip across the country worthwhile, may be suggested and worked out."

Richard Elliot takes time out from his duties as president of the Thomaston National Bank to enjoy his four great-grandchildren. Myron Fuller has taken up residence at Fort Myers, Fla., but comes to Easton in Massachusetts for the summer. He writes, "Left leg, lame since pre-Tech days, has gradually become worse and I can walk only with a cane. Some years ago I took a boat trip on *Delta Queen* to New Orleans and back to Cincinnati. Three years ago went down Ohio and up Mississippi to Rock Island below St. Paul, where we were delayed 10 days by fractured piston rod due to striking snag in cutoff back of island. In 1956 was in Easton. Some 16 days were spent in Brockton Hospital. In 1957 will take another boat trip up Tennessee River, etc., through lakes, along Mississippi and Alabama borders to Chattanooga, and return." From Palm Harbor, Fla., Mrs. Coolidge writes that Winthrop Coolidge's address will be 219 Lake Shore Drive, Chicago, the same as his son, W. K. Coolidge. — JAMES M. DRISCOLL, *Secretary*, 129 Walnut Street, Brookline 46, Mass. HENRY R. HEDGE, *Assistant Secretary*, 105 Rockwood Street, Brookline 46, Mass.

1897

Again George Wadleigh has rescued your secretary pro-tem. The following letter from him, with two enclosures, means that our notes for the May issue will not be a blank, for no other communications have been received to date. To celebrate the holiday on February 22, George wrote as follows: "Herewith two letters that should go to '97's Secretary for 'news' if he so desires. I do not remember Mrs. Wells, but she seems to have liked my 'You are old, Father William' appeal. I had in mind that the two ladies mentioned in Bill Potter's obituary were his sisters, but it seems they were daughters.

"Your last letter I seem to have mislaid, as my desk is in a mess due to T.A.P.P.I. all this week. I don't remember that there were any questions from you requesting an answer. Too bad you are getting so few suggestions as to June. Yesterday I saw 'Dan' Patch, Agent for 1902, and they expect to have about 30 at their 55th in June at the Wentworth. That is nearly double our turnout at our 55th. Chick Kane in his Fund report is again off in our last year's figures. Have told him he needs a new slide rule. I have an idea that M.I.T. is so imbued with nuclear physics that it is forgetting arithmetic."

The enclosure dated January 27, 1957, from Mrs. Wells, 50 Watchung Avenue, Upper Montclair, N.J., read: "Dear Mr. Wadleigh: That nice poem you sent the Class of '97 deserves recognition, even if no check is forthcoming. I was a 'special' in Professor William Sedgwick's department in the freshman year, 1894-1895 only, while I was a student in the Sargent School in Cambridge. I taught before I was married in 1900. My husband died last year, and I have not the means to help Alumni Fund, but I do receive the Technology Review [because class is over 50 years old] and read it with great interest and pass it along. M.I.T. is a great in-

stitution. Sincerely yours, Mary Howell Wells (Mrs. Joseph H.)."

The other enclosure was from a daughter of the late Bill Potter, Mrs. Jean P. Allen, Southampton, Long Island: "Dear Mr. Wadleigh: Many thanks for your kind letter of condolence which I was most pleased to receive. It is very gratifying to know how Father's many fine friends have regarded him with such high esteem. He was a grand person and a perfectly wonderful father, and words are not sufficient to express our tremendous loss. Sincerely, Jean Allen." — JOHN P. ILSLEY, *Secretary Pro-tem*, 26 Columbine Road, Milton 87, Mass.

1898

D. Reed Weedon '41, Chairman of the 1957 Alumni Day Committee, announced at the Alumni Council meeting of February 25, 1957, which the writer attended as '98 Class Representative, that there would be two unusual features on Alumni Day, June 10, 1957. One, the dedication of the Compton Memorial Building; and two, a real honest-to-goodness Pops Concert by Arthur Fiedler and his Symphony Orchestra. In addition, there would be all the regular features, as of last year — morning symposium, lunch and speeches in the Du Pont Court, dinner in the Rockwell Cage, etc., et al. Doesn't this start every member of '98, near enough and fit, a-planning to attend?

Yes, there will be a '98 Get-Together, somewhere, sometime, during the day of June 10, 1957, explicit directions for which will be mailed to you later. There are certain items of Class business which require consideration and action. (1) The 60th Reunion. With the passing of our unusually gifted and perennial, we hoped, chairman, Lester D. Gardner, it will be necessary to choose another chairman; also to decide the sort of Reunion the Class desires. (2) Class Election. To fill vacancies and to make such changes in the personnel of the Class officers as may seem wise. The recent roster of the Class, as of January 1, 1957, lists over 100 names. Accordingly, the members of the Class should have little difficulty in finding eligible candidates for all the offices necessary to keep the good old Class on a steady course. (3) The '98 Capital Gift Fund and other gifts to M.I.T. In view of the many gifts of classmates and the economic situation, there are certain questions of policy on which the accumulated wisdom of the Class should be focused. Hence, come to the meeting primed to give your full measure of advice.

Last winter we were all set with a plentiful supply of Class Notes, as mentioned in the December '56 issue of The Review, and indeed had drafted quite a bit in advance, when like a bolt from the blue (however, not entirely unexpected) came news of the passing of many classmates. It was necessary to start all over again, which was easy, and to try to secure and write suitable obituaries, which was not so easy. Those who have had similar experiences will understand and appreciate the disturbance and difficulty involved. Now here's a solution! Let each classmate write up his or her biography, seal it in an

envelope, and write on the envelope, "To be sent to the Secretary of the Class of '98, M.I.T., on my decease." Not that we want any of you to plan or to think of dying right off, otherwise we will be obliged to stage for you another Father Sturm's Verschlafener Geburtstag (remember freshman German); but it would help immeasurably a harassed secretary.

So now we are off again, starting with last summer and a card from Howard Bodwell, in response to President Edgerly's letter. "Howard L. Bodwell, Course II, La Jolla, Calif. Retired for good March 1, 1946, my 70th birthday. Left Pittsburgh three days later for California and settled in this beautiful town, La Jolla, a suburb of San Diego. The climate is wonderful, making it an ideal place for retirement. I play three 18 holes of golf per week, some shuffleboard, do all of our garden work under the supervision of an expert (Mrs. Bodwell), also help keep house. Read a lot, play bridge, canasta, etc. So my time is pretty well occupied, and I am too busy to grow old."

Ernest Bragg has published another booklet under the title, "A Wonderful Transformation and Some of its Results in Human History." He has kindly sent us a copy. There are four sub-titles: "The Laboratory of the Universe," "The Terrestrial Laboratory," "Bog Iron Ore in the Colonies," "Bog Iron Ore." Under these headings are considered the evolution of the universe and of the earth, and the development of iron ore, especially bog iron ore (limonite) and the manufacture of iron from the bog iron ore in the northeastern part of the United States. We quote, in part, from "Bog Iron Ore in the Colonies":

"The first iron works in America was built in Virginia in 1619. Before this works could be put into production, it was destroyed by the Indians. The second iron works was built at Quincy, Mass., but it never produced much. The third in number but really the first in point of practical use was at Saugus, Mass. This Saugus Iron Works is now restored and maintained as a national museum."

Fred Jones is a genealogist and is especially interested in the region around Dedham and Needham, in which a maternal ancestor, Benjamin Mills, kept an inn. Fred relates that in colonial days, when the Massachusetts Bay Colony was expanding, several families from Watertown moved into a tract of land which comprised what is today the towns of Dedham, Needham, Wellesley, Dover, Natick, and Millis. This region was first called Plantation Contentment. Later the name was changed to Dedham. The church and school were erected in Dedham; and all settlers, no matter how far they lived from Dedham, were obliged to attend church and to send their children to school. This worked a considerable hardship on those living at a distance, and, accordingly, various petitions were presented to the General Court for the formation of separate towns. Thus, in 1711, the people in the region that is now the town of Needham filed such a petition, which was granted, subject to the proviso that the people of Needham must provide for preaching.

In pursuit of his hobby, Fred has made

extensive research and has also contributed various articles to the press. Thus, we find an article to the *Townsmen*, Wellesley, Mass., May 24, 1956, on the subject, "A Day at Mills' Inn at the Lower Falls of the Charles in Needham"—a combination of a travelogue and a social hour at the Inn, wherein Judge Samuel Sewall, Dr. Cotton Mather, and a president of Harvard are introduced in addition to Fred's ancestors. We quote in part: "The author of this narrative, a descendant of Benjamin Mills, has assumed that the persons mentioned dined at the Inn. The courses of food served at the dinner and the conversations are fictitious but in keeping with the times." To document his assumptions, he quotes from Judge Sewall's diary, under date of July 22, 1712, and from the Records of the Town of Dedham. Then follow four columns of narrative which, to those interested in colonial households and customs, have a real charm.

We had the pleasure last summer of calling on our classmate, Atherton Tucker, at the home in Kennebunkport, Maine, of a mutual friend, a prominent citizen of Andover, Mass., and of Kennebunkport. It was good to talk with Atherton and his wife and daughter, whom we had not seen since the 50th Reunion. Atherton was not too robust but was cheery and courageous. Last Monday our Andover friend called up and informed us that Atherton had passed on Sunday, March 3. Through his courtesy, we were able to attend the funeral services on Tuesday, March 5, and he also obtained a clipping for us from the *Lawrence Times* of March 4, as follows:

"Atherton Tucker, 85, 137 Main Street, Andover, died Sunday night at the Sheltering Arms Nursing home, North Andover, following a short illness. Born in Dorchester, he was a resident of the suburban community for the past five years. Mr. Tucker was a retired engineer for the Remington Rand Company. He was graduated from M.I.T. with the Class of 1898. He was a member of the Masonic lodge of Ilion, N.Y., and elder-emeritus of North Presbyterian Church, North Tonawanda, N.Y. He attended South Congregational Church, Andover. He leaves his wife, Eva (Forte) Tucker; two daughters, Miss Eleanor M. Tucker of Andover, and Mrs. Elizabeth B. Dice of Middleville, N.Y., and three grandchildren." We understand that Willis Learned also represented '98 at the services. We shall all remember Atherton for his high character and his wonderful tenor voice. — EDWARD S. CHAPIN, *Secretary*, The Eliot, 370 Commonwealth Avenue, Boston 15, Mass.

1899

Although the Class of '99 is long past the average retirement age, it would be most interesting to know how many of the Class are still active in their respective professions. Also, if retired, what are your hobbies or other activities that keep you out of the idle class?

As an example, your secretary is active and works on problems of the aged—a subject which is receiving a great deal of study from legislative and civic leaders.

A letter from you on these or allied subjects would be of value.

We are sorry to report the death of Charles A. Schmitt on March 17, 1957, and quote, in part, from a newspaper article: "Charles A. Schmitt, 82, formerly of Reading, an ink chemist and handwriting expert who was an expert witness in many major criminal cases, including the Lindbergh kidnaping trial, died yesterday at his home in Scarsdale, N.Y. A graduate of M.I.T., he was head chemist for the Carter Ink Company in Cambridge for more than 50 years. He served many years as a director of the Boston Industrial Home and was active in civic and charitable work. He leaves his wife, Mrs. Katherine Schmitt; two daughters, Mrs. Gladys Pestana of Amherst, N.H., and Mrs. Alberta Middleton of South Natick; a son, Charles, of Scarsdale, and a brother, Henry, of Roslindale." He was a consistent attendant at reunions, and a fine member of the Class. — BURT R. RICKARDS, *Secretary*, 173 Edgewood Avenue, Pleasantville, N.Y. MILES S. RICHMOND, *Assistant Secretary*, South of Commons, Little Compton, R.I.

1900

The annual get-together of the Class of 1900 will be held, as usual, at "The Pines" in Cotuit, Mass., on the three days following Alumni Day. Consequently, we will go to Cotuit on Tuesday, June 11. The arrangements will be as usual. Each will make his own reservations directly with The Pines, Mr. C. D. Crawford, Cotuit, Mass. All will receive reservations in "Evergreen." Since The Pines will not be opened to the public as early as June 11, special arrangements will be made to entertain us in Evergreen, and our meals will be served there. This should make it even more enjoyable than usual. Any member of the Class who will go to The Pines for those three days will be sure of a good vacation and the company of a number of his classmates.

These notes are again being written in Florida, but your secretary will return home in a few days, arriving there before the last of March. He was finally successful in finding Warren Edson at home in St. Petersburg. Later, in Palm Beach, he had a pleasant call on Louis Breer. Unfortunately, George Archibald was not at home when he called at his lovely residence. In all he succeeded in contacting six of the Class while in Florida. He also called on Edwin Packard '99 who was in a hospital in Gulfport. — ELBERT G. ALLEN, *Secretary*, 11 Richfield Road, West Newton 65, Mass.

1901

Since writing the April notes I have received considerable additional information about Carl Johnson from his grandson, which I think might be of interest to the Class. He was former vice-president of Johnson Service Company of Milwaukee, which manufactures pneumatically operated temperature and air conditioning controls and systems. At the age of 15 he obtained his first patent on a time stamp. Another is the dual thermostat used for maintaining different

temperatures in public buildings. He was instrumental in negotiating contracts with the U. S. Postal Department to use automobiles to collect and distribute mail. This event was commemorated by a special stamp with a picture of the Johnson Mail Collection Car. He served in World War II as a major and later operated an instrument flight school in Reno, training pilots. He was a great music lover, having had several of his compositions published. He was an enthusiastic sportsman; past president of the Tuna Club at Catalina, and past president and commodore of the Catalina Island Yacht Club. He published and edited the *Sportsman's Review*, Los Angeles, created the California Deputies College for training law enforcement officers, and the California Reserve Deputies Association. He was a 32nd degree Mason, and also belonged to the Knights Templar and Shrine.

I have considerable material in the 15 Class Letter replies which have come in. I will make a start with one or two. Nat Patch, II, of Buffalo writes: "All the boys know that I have had the problem with my eyesight, but it is failing now to the point where no reading is possible. I do enjoy the reports of the secretary which are read to me by my wife. The real excitement that has happened to us has been the discovery that we both suffer from varicose veins, something that is very painful but does not provide much of interest to anybody except ourselves. We are having a lot of fun with our garden, very small but highly cultivated and well provided with a variety of things—some fruit trees and a young holly tree as well as a variety of flowers. It takes time to cultivate properly, but that is our hobby. Since my eyesight will not permit watching TV, the radio is my other hobby. My third hobby is my pleasure with my nephews and nieces growing up into man and womanhood, and offering a good deal of speculation that is a real pleasure since we have no children of our own."

From Ed Fleming, III, in Los Angeles: "I was glad to receive your February news letter. While I am afraid that I will be unable to attend the 60th reunion, I expect to be there in spirit. My health is quite satisfactory, considering, and I keep rather busy. While I retired from the American Smelting and Refining Company in 1950, they still retain me as a consultant, and I am entering my 51st year of service with the Company."

Mort Foster, VI, of West Hartland, Conn., sends me a clipping which says that Mr. and Mrs. Foster received a letter of congratulations from President Eisenhower, noting their 55th wedding anniversary, which was on December 5. Both Mr. and Mrs. Foster are active in church work. Mr. Foster is an usher in the Federated Church. He is also busy as a registered public accountant. He has four children, nine grandchildren, and two great-grandchildren. — THEODORE H. TAFT, *Secretary*, Box 124, Jaffrey, N.H. WILLARD W. DOW, *Assistant Secretary*, 78 Elm Street, Cohasset, Mass.

1902

There is little Class news as the 55th Reunion will be held in about a month

— June 7 to 10. In all, 114 notices were sent out on reply postcards. Thirty-three replies were received, and, of these, 25 wished to be kept informed regarding the event. At this time, the middle of March, no definite decision has been asked for, but it is hoped that all 25 will gather at the Wentworth.

George E. T. Eagar reports that at the time of the Reunion he will be with the New York Forest Rangers for the twelfth season. He has charge of one of the state forest camp sites, and his duties are to see that the simple rules and regulations for campers are maintained. He also is a source of advice and help to such campers as are not familiar with camp life. Mrs. Eagar shares the three months of camp life with him and is as skilled as he in outdoor life. Of late they have spent their winters in Miami.

Let us see you at the Reunion. — BURTON G. PHILBRICK, *Secretary*, 18 Ocean Avenue, Salem, Mass.

1903

We wish to congratulate our Class Agent, Carlton F. Green, for his excellent presentation of the objectives of the Alumni Fund and making clear to those who are unable to participate as they would wish that they should feel no embarrassment in any way; also to emphasize his suggestion about sending in personal items of interest. If you like to hear of what others are doing, they will also be interested in your activities.

Frank Toohey, II, has recently moved from South Acton, Mass., to Maynard, Mass. (P.O. Box 102), and would welcome visits or correspondence.

Ralph H. Howes, 78, retired construction engineer, of 42 W. 12th Street, died Saturday, February 16, 1957, in a New York hospital. He retired from active business in 1945. He was past president of the M.I.T. Club of New York. As head of the R. H. Howes Construction Company, Inc., with offices at 103 Park Avenue, he built a number of upper East Side apartment houses in New York. One of his projects was the Amoskeag Bank Building in Manchester, N.H. Surviving are his wife, Mrs. Grace S. Howes, and a son, Ralph H. Howes, Jr. Always a loyal supporter of Class activities, his genial presence will be greatly missed.

Your secretary has been especially privileged the past fall and early winter to have his eldest daughter, Dorothy, and family with him during a sabbatical leave of her husband, Dr. Donald H. Rhoades, from the University of Southern California. They are now safely back at their home in Hermosa Beach after the long trip by car, via a southerly route.

Our Treasurer, Fred A. Eustis, who has been convalescing from a long illness, at this writing says he is much improved and hopes to be about again soon. — LEROY B. GOULD, *Secretary*, 36 Oxford Road, Newton Centre 59, Mass. F. A. EUSTIS, *Treasurer*, 131 State Street, Boston 9, Mass.

1904

On Sunday afternoon, March 17, the undersigned and their respective wives,

with Harry Kendall, Doc Moore, and Tammy Rockwood paid our last respects to Henry Stevens. It was a beautiful day and there was standing room only at the funeral home, an indication of the large number of friends Henry had. Several other classmates would undoubtedly have been present but were wintering too far away. Henry has left a vacancy in our Class ranks which no one can fill. He has been our secretary from near the beginning of our careers as Alumni and has managed to make our Class notes in the Technology Review interesting in spite of the meagre news we have furnished him. To say the Class will miss him is to state our loss mildly. Mrs. Stevens has the deep sympathy of us all.

The last edition of these notes which Henry prepared did not appear until the April Review, several weeks after his death. In them reference was made to the death of Paul Paine and with comments on Paul by one of his best friends, our classmate "Shorty" Holbrook. It is now our sad duty to record that Shorty himself has now also passed away as a result of a heart attack. Shorty had a distinguished career as an educator with service in several institutions. He finished his active service as dean of engineering at the University of Pittsburgh, a position he ably filled for a considerable period of years. As Henry mentioned in a recent edition of the Class notes, Mrs. Holbrook has never fully recovered from an automobile accident which occurred nearly three years ago. We all therefore extend our special sympathy to her at this time.

Among Class material passed along to us by Mrs. Stevens was a letter from Bob Phinney, as follows: "Dear Henry: When you receive this letter, I will be on my way to India with Mrs. Phinney. As of January 1 I was retired from the General Railway Signal Company, but was already on a leave of absence working on two projects for the Indian Railways under our foreign aid program. We shall probably be gone from two to three months. My job will be to follow up the reports which I have already made for the very latest type of signaling called Centralized Traffic Control. Since 1946 I have been doing foreign work for G.R.S. which took me to China, Spain (four times), Holland (twice), Pakistan, Turkey, Brazil, Venezuela, and Mexico. This is the first time my wife has been able to go with me. My son Bob is now in his third year at M.I.T. taking the new five-year course in Geophysics. He has remained on the Dean's list from the first. He has recently been elected president of Lambda Chi Alpha fraternity. We think he is doing pretty well. I read your Class notes each month with a great deal of interest. If young Bob receives his master's degree in 1959 as he plans, it will coincide with our 55th. I certainly hope to see you there. Better keep your good health. Sincerely, Bob Phinney." The Phinneys made a stop in Boston before taking the plane for India, and we were glad to see them for a little while. We hope they return safe and sound after an interesting trip.

George Harrington and your Class president have become members of the "Legion of Honor" of the American In-

stitute of Mining, Metallurgical, and Petroleum Engineers. This merely signifies that they have been members for 50 years and has no reference to distinguished service.

The undersigned will assume the duties of preparing the Class notes until such time as an official secretary is chosen, so we repeat Henry's monthly appeal for news about yourselves or other classmates. In closing, we urge you all to take good care of yourselves. The "Grim Reaper" has made shocking inroads on our numbers recently, and we want to slow up the rate. — CARLE R. HAYWARD, *President*, Room 35-304, M.I.T., Cambridge, Mass. EUGENE H. RUSSELL, JR., *Treasurer*, 82 Devonshire Street, Boston, Mass.

1905

Since writing last month's notes, I have been amused on reading in the "New Hampshire Alumnus" the class notes of the secretary of the Class of 1948. I read this publication regularly, first because I consider it one of the best alumni magazines (national awards prove it), secondly because I had a daughter in '48, and a daughter and two sons-in-law graduate in 1952. Here's the way this secretary starts her notes for the last issue: "N. H. Alumnus Class of 1948: This is going to be a different type of news letter, completely different in that it carries no class news. The reason is that there is no class news (that explains why there was no column last month). Instead of just skipping the column again, I thought you were at least entitled to know the reason why not only is our condition that bad, but the prognosis is not better. Unless a number of letters reach me before next month's issue, there will be no news to report then either, the month after and so forth, so if you like to read our news, you'll clearly see you have to write me some." Then she closes by saying that it's too much work for her and the assistant secretary to write each member personally asking for news, and "there isn't enough money in the class treasury to get out mimeographed notices." Rather subtle, eh? Speaking of mimeograph notices, I sent out 80 letters asking for news within the past months, and to date have received just three replies, not even three per cent. All secretaries have their troubles.

I have received four inquiries as to whether we are to have a reunion in June — our 52d. I do hope this interest is more sustained than in some previous instances. However, let's try it again. We'll not call it a reunion, if that scares you off, just a get-together to chew the fat and enjoy the leisure of some intriguing Cape Cod hostelry. About the time you read these notes you will be receiving an informal statement of place, time, etc., perhaps for June 22 or 29.

One of the fellows responding to my appeal was Edward C. Smith, V, 13850 Clifton Boulevard, Lakewood, Cleveland 7, Ohio. He writes, "I doubt if any one of our classmates remembers me. I had graduated, B.A. in 1901 at Amherst College, and for two years had served as laboratory assistant in chemistry. I was then advised to complete the Chemical

Course at M.I.T. where industrialists were seeking technical men for their factories and laboratories; so I borrowed money and did just that. Before graduation day came I had had an interview with the late Mr. Amos N. Barron, Factory Manager for the National Carbon Company of Cleveland, Ohio, under whom I was given employment, and for 40 years served in their factories and laboratories, in various places and capacities, improving the quality of the Eveready Dry Cells and Batteries.

"I used to have correspondence with our classmates, Elmer W. Wiggins and Arthur C. Long, but both of them have now passed into the Beyond. For a few years I had pleasant and occasional contact with Alfred L. Smith at meetings of the American Chemical Society. But he died in 1949.

"My present occupation, since my retirement on a pension in 1945, is genealogical research. Right now I have a client who lives in Alabama, and has me tracing his lines back to Palatine Germans in Pennsylvania and Ohio, and some lines back to the *Mayflower*. Another in Florida is seeking data on members of the Morford family who lived in Ohio a century ago. It is interesting work when one can actually find material of value. Smiths continue to persist. Our first representative, a Matthew Smith, came from Sandwich, England, in 1637, and settled on Mill Hill in Charlestown, Mass. That was later called 'Breeds Hill,' and so I can boast that the Battle of Bunker Hill was fought in our back yard. To be sure, by that time our Smiths had moved to Connecticut, but my ancestor, Matthew Smith, turned out at the Lexington alarm, and was stationed in Roxbury, Mass., guarding the lines when the Battle of Bunker Hill was being fought just across the river.

"Our only child, Edward Fowler Smith (A.B., Oberlin, 1936), is one of the librarians in the Library of the Argonne National Laboratory, Lemont, Ill., which is operated by the University of Chicago for the Atomic Energy Commission. So his business is in the forefront of science, industry, and defense. His son, our only grandson, Alan Craig Smith, now just two years old, is a charming and active specimen, who, we expect, will emulate in education and enterprise his father and grandfather. Alan's great-grandfather, Edward Payson Smith (Amherst, 1865; Ph.D., Johns Hopkins, 1887), was professor of English, modern languages, and economics at Worcester Polytechnic Institute, Worcester, Mass. College educations seem to run in the Smith family. Alan's maternal great-grandfather, John Fowler, was a soldier in the Civil War, and a member of the Grand Army of the Republic."

Another letter to Herman Eisele, XIII, brought a statement from his daughter to the effect that Herman passed his 70th birthday recently, that he is still active in private practice as a consulting engineer, and works about 10 hours a day, six days a week.

Fred M. Eaton, V, from whom we had had almost no direct information for many years, comes up with this bit of personal history: "Your records may con-

firm the fact that I have been in Las Vegas for the past 15 years. Despite reports to the contrary, this is really a quiet little desert town. I have watched it grow from about 9,000 population to almost 50,000. You can imagine what that means in the real estate market! Had I been in better shape financially at the time I arrived, I would now be in a position to underwrite many of the proposed extensions and improvements at the Institute. But this is only a fond dream. However, the turn of affairs caused me to abandon the line of work I started out to do and turned my attention to engineering, specializing in land subdivisions, etc. There is little within a radius of some 20 to 25 miles that I have not covered with my little transit and chain.

"The transition from chemistry to engineering was accomplished in several stages. First from chemistry as such to building chemical plants; then to metallurgical recovery plants; then to engineering. In the course of time I ran into M.I.T. men here and there, some young, some old, and some almost as ancient as I. Charles McCarthy (Colonel, U.S. Army, retired) is one of my fellow-townsmen. He was 1902 (Philbrick take notice). Another was Frank Rathbun (deceased) of 1903. Another is Ray Gardner '50, whom I just met today for the first time.

"I suppose that many of our men have been victims of the training many of us got in our student days — too much emphasis on *how* a thing is done rather than *why* it should be done. Therefore, I am glad to see that business management is coming to the fore, relieving M.I.T. men of the necessity of working for someone whose training had been different.

"I have not made any of our reunions. In the first place, it is a long walk. In the second place, there are so many on the missing list that I sometimes feel that I would rather remember them as they were than to have it brought home so drastically that our ranks are thinning. My silence over the past years has not meant that I have forgotten, but that I have taken refuge as all do at our ages, and am guilty of living too much in the past. My most sincere good wishes to you and all our classmates."

Roy and Andrea Lovejoy are in New Orleans (Andrea's home town) enjoying Mardi Gras and other interesting things. Roy says there are 21 parades and 67 balls during carnival seasons, and they expect to take them all in. A picture post card from Prince Crowell shows him and Ethel enjoying life on a six-day cruise up the Caloosahatchee River to Lake Okechobee through the Everglades. The boat is 50 foot by 20 foot which doesn't allow Prince much room for his customary activity.

Two deaths for report this month. Edwin M. Lines, VI, died at his home in Dedham on February 27, 1957. He graduated from Yale in 1903 and came to M.I.T. in September of that year. Upon graduation he went with Westinghouse as an apprentice. In 1910 he was associated in business with Jack Flynn, II. In 1915 he went with Barber Asphalt Paving Company, but shortly after entered the employ of Bird and Sons, East Walpole, Mass., where he ultimately became

head of the research department and a member of the Board of Directors. He had been treasurer of St. Paul's Episcopal Church since 1942, also senior warden for the past 10 years. He leaves, besides his wife, two daughters and a brother, Harold S. Lines of Falmouth, Mass.

Mrs. Carl A. Houck writes that on January 22, 1957, Carl, I, passed away after a sickness of several years. He had been on the engineering staff of the Buffalo Structural Steel Company ever since graduation; in fact, had that same position at the time of his death, although for a period of the last two years sickness kept him from active participation.—FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. GILBERT S. TOWER, *Assistant Secretary*, 35 N. Main Street, Cohasset, Mass.

1906

What thousands here have been seeing indoors this week (March 10 to 16), many of you are seeing outdoors, or will when you read these notes in mid-May, but in less concentrated displays, and probably lacking some of the variety. These thoughts stem from the visit of the secretary and his wife to the Flower Show of the Massachusetts Horticultural Society, including as it does, about every kind of flowering plant, shrub, and tree, even some flown from Hawaii. These shows through the years have been marvels of planning and execution, perfect in every detail and a thrilling example of growers' ability to force flowering for a given date. Incidentally, I sat awhile in the balcony of the main hall near where, more than 50 years ago, Horace Ford and I leaned over the railing to watch the finish of the dashes and hurdles at the B.A.A. Indoor Meet, and the Tech relay team battle it out with their competitors. Like the old Brunswick Hotel and "Tech Chapel," Mechanics Building may soon be gone as the Prudential Insurance Company has an option to buy it in connection with the multi-million dollar civic center they are planning to build on the adjacent yards of the Boston and Albany Railroad, when our old "gym" on Exeter Street will also disappear. Ah me!

News is mostly conspicuous by its absence. We did have a post card in February from Bill Cady, who was then in San Diego, showing a stretch of the picturesque California shore line. Bill and his wife were making a 3,000-mile motor trip from Portland—the city that has been making the headlines (March) about the graft in the Teamsters Union. Probably other unions aren't any too clean either. Early in March a nice letter of appreciation was received from James H. Kidder's widow. It seems that James had recovered to some extent from the heart attack he suffered before reunion, when a second one occurred and was fatal. He had lived in retirement on the Green Point Plantation at Yemassee, S.C., for about 18 years, until 1950 when he moved to Beaufort, where, Mrs. Kidder writes, "he lived up to the time he came to Charleston to live with his daughter, and we were married."

All of our classmates on the active mailing list should have received the letter dated March 4 from President Killian

informing us that again this year The Review is being sent to us with the compliments of the Corporation — a letter typical of Doctor Killian when he says, to quote briefly, "The eminent position held by M.I.T. today was attained, in large part, through the long and loyal efforts of its Alumni." As a matter of fact, you would probably agree that "eminent position" has certainly been sustained, and considerably enhanced by Doctor Killian himself. If any are not receiving The Review, please let your secretary know. You might also like to have a copy of the special 75th anniversary number of the *Tech*, which was issued last December and of which a few copies are still available. It is an admirable review, by a special staff, of the history and changing growth of the Institute through seven significant periods: 1881 to 1888, to 1897, to 1909, to 1918, to 1928, to 1949, and to 1956. If you haven't one, a copy is yours for the asking while they last, if you "write to Ned."

As mentioned in the April notes, Sherm and Bertha Chase were in Florida for a few weeks in February, partly a business trip with stops in Jacksonville, Daytona, and Miami, then a week or so in Miami and in Sarasota. In a recent telephone chat Sherm said he hadn't run into any classmates — figuratively speaking, of course — and by now the Northerners are probably back home enjoying our New England spring. As I write these notes I see a cellophane cigar wrapper stamped Combustion Engineering, Inc., which I had saved to remind me to tell Joe Santry I had enjoyed a good smoke at his company's expense after our Christmas dinner with son at Waterford, Conn. It seems that Combustion Engineering has the contract for the power plant for one of the atomic submarines Electric Boat is building at Groton, where Junior is planning engineer and head of the planning division — and that's how come the see-gar. C.E., in its ad on page 163 of the January Review, says, to quote, "Combustion is actually engaged in many nuclear projects, including the design and manufacture of a complete reactor system for a submarine." Joe's company is keeping out in front, seems like.

Just as these notes are being hammered out to meet the deadline, along comes a welcome letter from Floid Fuller, thus: Frances and I have just returned from a five-week sojourn in Tampa where we were visiting our daughter, son-in-law, and three grandchildren. One week end we flew over to Cuba to attend the "M.I.T. Week End in Havana." We were met at the airport by Rodríguez'21 and Beola'14, who expedited us through customs and escorted us to our hotel. That evening, Sr. y Sra. Rodríguez entertained the early arrivals at their charming home in the outskirts of Havana. On Saturday the local members of the Club took their visitors on a tour of Old and New Havana, then for cocktails to the Rum Havana Club Patio, and to the Tropical Gardens for lunch. Sunday evening there was a Gala Banquet at the Havana Yacht Club. The Fullers headed the 'Lista De Asistentes a la Comida' as I was the oldest graduate there. Due to this questionable honor I received two bottles of rum and Frances

a gorgeous orchid. Monday, to the world famous Varadero Beach, and lunch. The M.I.T. Club of Cuba plans to have another 'Week end' two years from now. We certainly recommend it to anyone interested in seeing Cuba under unusually favorable conditions. On the way home from Florida we spent two days with Charles and Florence Shapleigh in Charlottesville, and happily re-lived our June reunion."

Maybe Floid had an intuition, because these notes were to end with, "Any '06 guys and gals attend that 'week end in Havana' or the M.I.T. 9th Fiesta in Mexico City? What have you been doing anyway, and where have you been, and where are you going?" Alumni Day is June 10 with another mammoth banquet in the Cage — will we see you then? The Harry Lewenbergs have moved from Brookline to 21 Retrop Road, Natick, Mass. — EDWARD B. ROWE, *Secretary-Treasurer*, 11 Cushing Road, Wellesley Hills 82, Mass.

1907

At the M.I.T. Regional Conference in Chicago last February 16, our Jim Barker was paid a nice tribute with a citation as follows: "The Alumni Association of the Massachusetts Institute of Technology honors James Madison Barker, loyal Alumnus of the Class of 1907, a talented professor of civil engineering who ventured afield into banking and finance to become notable internationally as a business statesman." The document was signed by the president, the executive vice-president, and the secretary of the Alumni Association.

Leon L. Allen, who for many years was town accountant for the Town of Brookline, Mass., has retired and is now living at 692 Jerusalem Road, Cohasset, Mass. In February I received a card from Frank R. vander Stucken, giving a New York City address which he said was only temporary, as he retired from active engineering practice two years ago and is living in Switzerland. He wrote: "My regards to the boys." He gave no address in Switzerland. Under date of February 20 I received a nice note from Roland H. Willcomb, Route 1, Box 235, Silverdale, Wash., enclosing his contribution to our 50-Year Anniversary Gift Fund. He wrote: "I'm sorry I can't justify the trip back East for the 50-year reunion. It would be grand meeting with some of the fellows again after all these years. My hearty good wishes for a near-perfect reunion for all those who can attend. Both Bess [his wife] and I are in pretty fair condition — considering. At the moment we are looking after one of our daughters and her three school children during a temporary period of transition. Sort of keeps us at home. The best of good luck, and cheerio!"

Howard H. "Mickey" McChesney and his wife have moved from the house in Bala-Cynwyd, Pa., where they have lived for 35 years to a new home at 328 Conshohocken State Road, Narberth, Pa. Richard S. Woodbridge, III, a son of Dick Woodbridge'07, is assistant vice-president in the investment department of New York Life Insurance Company at 51 Madison Avenue, New York City.

General election coming in Canada next June will prevent the attendance of Clarence Howe, Minister of Trade and Commerce for Canada, at our 50-year reunion or at any of the Tech events on June 7 to 10. We all greatly regret that this must be so, but Clarence has written to me several times saying that he has no alternative but to stay on the job in Ottawa. Here is the wording, without the typographical arrangement, of a political advertisement that appeared early last March in a Port Arthur, Ontario, Canada, newspaper: "Who is C. D. Howe? Clarence Decatur Howe was born in Waltham, Mass., 1886. Thus your representative in Parliament since 1935 is past the Biblical three score years and ten. A bachelor of science graduate of famed M.I.T., he came to Canada as a teacher in 1908 but soon branched off as a consulting engineer. His fortune was made in designing and constructing elevators throughout the world. His introduction to this field came when he was a civil servant in Port Arthur during the First World War. A family man, Mr. Howe gave up his tie with C. D. Howe and Company when he entered politics. He still visits Port Arthur on occasion to see his son John, an employee of C. D. Howe and Company. His permanent home is in Ottawa and his summer residence is at St. Andrews-By-The-Sea, a fashionable holidaying place for Canadian millionaires.

"Since the resignation of MacKenzie King as Prime Minister, Mr. Howe has been the right-hand man of Louis St. Laurent, continuing the Canadian political truism that a government, to exist, must have a strong partnership of a French and English-speaking duo. Indeed, Mr. Howe has been referred to as the real prime minister. Mr. Howe entered politics in 1935, the year of the Conservative Party's collapse before the 'It's King or Chaos' campaign of the Liberals. Before this he had some municipal experience as member and chairman of our Board of Education. Immediately he was made a cabinet minister, reorganizing the communications ministries and setting up Trans-Canada Airlines and the C.B.C. During the war he held the vital, and largely non-political, Ministry of Munitions and Supplies. Today he is best known as Minister of Trade and Commerce, and as a pipe-line planner. Although Mr. Howe has been reelected comfortably in four general elections, he has never had the smash triumphs one might expect from such a giant and from the liberal way he spent on campaigning." Various records of electoral votes follow in the advertisement, which altogether is quite a tribute to our classmate, especially as it is sponsored by his political opponents.

At the time when you are reading this, only a few weeks will remain before the beginning of our Golden Anniversary Reunion on June 7 and the events of that entire week end at Cambridge and Osterville in which it is your privilege to participate. So please use the registration form that you have received from me, and mail it to me with your check, definitely assuring a room reservation for yourself at Oyster Harbors. And if you have not yet contributed to our 50-Year Anniversary Gift Fund, which will be pre-

sented to President Killian on the evening of Alumni Day, June 10, won't you send along to me, positively by June 1, your check made payable to W. A. Hokanson, Bursar. — BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, *Assistant Secretary*, 18 Summit Street, Whitinsville, Mass.

1908

The third dinner meeting of the 1956-1957 season was held at the M.I.T. Faculty Club, 50 Memorial Drive, Cambridge, on Wednesday, March 6 at 6:00 P.M. While several of our regulars were in Florida or had other engagements, the following were on deck: Bunny Ames, Nick Carter, Fred Cole, George Freethy, Sam Hatch, Winch Heath, Henry Sewell. As usual, we met in the Cocktail Lounge, where, over our favorite libations and an ample supply of hors d'oeuvres, we brought each other up to date on recent happenings to various classmates. About 6:30 P.M., we adjourned to private dining room No. 1 for the usual excellent dinners of our choice.

Due to the absence of Joe Wattles, who was celebrating his wife's birthday, we had no Kodachromes. We discussed plans for our Informal Reunion on the Cape in June. Last year's party was so successful, it had been decided to repeat. Headquarters, as last year, will be at Melrose Inn, Harwich Port, Mass., June 7-9. Alumni Day at Cambridge, Mass., will be on Monday, June 10. You will hear more about the Reunion from Les Ellis, our treasurer and reunion chairman, before long. Better plan now to be with us. Joe Wattles is attending the Rotary International Meeting in Switzerland later this month, but expects to be back in time for our reunion. Charlie Steese of Harrison, Ark., and Harry Lord of St. Petersburg, Fla., have written that they will be on hand at Harwich Port for the festivities.

Remember the Alumni Fund, and if you haven't as yet subscribed, please do so soon. All gifts help to build up our 50-Year Gift to the Institute which, as you know, we present in 1958. So be generous, either by a check or a bequest in your will. In either case, 1908's 50-Year Gift to the Institute will benefit greatly by your interest.

We are sorry to report the death of "Doc" Leslie on February 14, 1957, at his home in Beverly, Mass., following a long illness. Les and Helen Ellis attended the funeral, as did Arthur Appleton, who lives in Beverly. The Class lost another loyal member in the death of Matt Porosky at his residence in Moline, Ill., on March 3, 1957. Matt was president and general manager of Eagle Signal Company of Moline, Ill., as well as an officer and director of several other organizations. Mrs. Porosky died the day before Matt on March 2, 1957. A double funeral service was held on March 6 at Temple Ohabei Shalom, Brookline, Mass. The sympathy of the Class is extended to Doc's and Matt's children. H.A.S.N.? — H. LESTON CARTER, *Secretary*, 14 Roslyn Road, Waban 68, Mass. LESLIE B. ELLIS, *Treasurer and Assistant Secretary*, 230 Melrose Street, Melrose 76, Mass.

1909

In the February Review we told of Dave Marvin, XIII, having moved from sea level at San Diego to New Mexico. In citing his career we stated that he "joined the Navy" in 1920. He has written again from Alamogordo, N. M., pointing out one slight inaccuracy. "In the splendid spread you gave me in the current Alumni News, either I slipped a key, or you edited my letter a bit in error. I did not actually 'join the Navy,' but served on two cruisers under my Coast Guard Commission, in the *Denver* and *Tacoma*, in the Atlantic and Pacific. I was retired for a wheeze caught earlier in the Bering Sea and was recalled twice to active duty. I was laughing to myself that I ought to have a new crest: a swallowed anchor couchant on a field of dry sagebrush with a brown mountain in the background; maybe with a flying missile rampant en azur. Not that I know how to draw an anchor couchant." We are glad to correct the slight error, which was due to the fact that some typed lines were rather faint and, as a result, misinterpreted. With the letter Dave included a glossy post card showing the vegetation of the Great White Sands, N. M., which we assume must be typical of the landscape near Alamogordo. The vegetation consists mostly of sagebrush and other plants which can adapt themselves to the dry climate and "ever-shifting dunes."

In the April Review we reported that Molly, XI, was in Vietnam on a professional assignment. He has since returned and has sent us the following: "On my return from Vietnam I find on my desk copies of your letters to Jim Critchett dated January 4, 1957, and to Hazel Gram dated January 16, 1957. I have also received a letter from Art Shaw dated February 6, 1957, relative to the activities of our committee on the 50-Year Fund with which you are no doubt familiar. We certainly have to feel grateful to Hazel, both for her generosity and for her helpful suggestion.

"As to my own recent activities, you might be glad to know that I have just spent three and one-half weeks in Saigon, South Vietnam, in connection with an investigation and report on electric power requirements and supply in the Free Republic of Vietnam under contract with the International Cooperation Administration in which I am associated with Franklin J. Leerburger, Day and Zimmermann, Inc., and George Schobinger, M.I.T. '08. En route to Saigon I spent two days in Hong Kong, which is certainly one of the most beautiful and interesting places in the world. On my return journey, I stopped off two days at Siem Reap in Cambodia to visit the nearby ruins of Angkor Thom, Angkor Wat, and other relics of the vanished Khmer civilization which is properly considered to constitute one of the wonders of the world; a day and one-half in Bangkok where I enjoyed visiting the temples and seeing the teeming life surrounding the floating markets on the rivers and on the canals; and a day in Tokyo. We expect to submit our report on Vietnam in April, and I may have to go back again for further work on the project next summer or fall."

Here is a brief note from Steve, X, from Gardenvale, Quebec. "The letter from Horace Brand in the 1891 class notes in the February Review recalls my experience with thermodynamics. My examination, too, had F on the first page! And I also noticed a 15. The professor was kind enough to look the paper over with me, and when I asked what the F meant, he said, 'You had your name right!' However, he straightened me out on some fundamentals that I had got upside down, and I passed the re-examination."

In the December 1955 Review we reported that Johnny Nickerson, II, had been appointed to the Secretary of Labor's Advisory Committee on Labor-Management Relations in Atomic Energy Installations. This committee consists of five members with David L. Cole as chairman. Johnny has just sent us a copy of the Committee's Report, dated January 31, 1957. The Report analyzes the unusual conditions existing in the atomic-energy plants. The work is secret and the security of the nation demands that it be uninterrupted. It is conducted by private contractors for whom there is absence of capital investment and competition for customers (the Government being the sole customer). In the past, labor-management disputes have been adjudicated by a special panel. The Committee has carefully analyzed labor-management relations at the several Atomic Energy Commission plants since their opening, as well as labor-management procedures in the United States and Great Britain. It recommends that the special panel be terminated and that labor-management relations be treated in the same manner as those in other important industries with certain procedures which would minimize the chance of strikes or shutdowns. Johnny states that "N.A.M. has been quite complimentary, which is rather unusual for Federal boards."

Many of you know that the Secretary owned a 30-foot cruiser called the *Elektros*. News came over the radio on Sunday morning, February 17, that three sheds in Reed's boatyard at Boothbay Harbor had burned up, and that "Professor Dorr's" cruiser was one of the victims. A new engine had been installed last summer and much was done to put the boat in top shape for 1957. It was well insured relative to its cost 20 years ago but not enough for a new replacement. As we will be abroad the early part of the summer, no attempt to replace it will be made this year.

The Boston *Herald* of March 4 told not only of the death of Matthew Porosky, VI, at Davenport, Iowa, on March 3, but of the death of his wife, Mrs. Harriet I. Porosky, a day earlier in Moline, Ill., where they had lived for the last 15 years. Both were 69. Matt prepared for the Institute at Boston Latin School and started with the Class of '08. Shortly after graduation he became connected with the Holtzer-Cabot Electrical Company in Boston. At the time of his death he was president of the Eagle Signal Corporation, Moline. He also was a director of the Hagen Manufacturing Company, Worcester, a vice-president of Temple Ohabei Shalom, and a member of the Educational Council at M.I.T. He was a former vice-president of

the Boston Rotary Club, and the National Electrical Manufacturers Association, and president of the New England Chapter of Cost Accountants. He was a former member of the Northeastern University Corporation. They leave a son, Stanley M. Proctor of Cleveland, Ohio; a daughter, Mrs. Harry Olins of Brookline, and four grandchildren: — CHESTER L. DAWES, *Secretary*, Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries*: MAURICE R. SCHRAFF, 250 East 43d Street, New York 17, N.Y., GEORGE E. WALLIS, Wenham, Mass.

1910

It is with sorrow that I announce the passing of our classmate, Bradley Jones. The following is from the Boston *Herald* of March 11, 1957: "Word has been received here of the death early Friday in Ohio of Professor Bradley Jones, 67, pioneer in the field of aviation. A native of Boston, he entered M.I.T. at the age of 16, after graduating from English High School, and received his S.B. degree in 1910. He received a master's degree from Norwich University in 1914. On February 28, 1926, Professor Jones, then a lieutenant in the Air Force, set a non-stop record from Dayton to Boston, travelling the 725 miles in five hours and 50 minutes. He also was navigation-observer on a historic 630-mile flight from Dayton to New York City in January, 1923, which set a new non-stop record of four hours and three minutes. Professor Jones, who inaugurated the co-operative program in aeronautical engineering at the University of Cincinnati, joined the University in 1929. He was the author of several books on aviation. He had taught at the University of Pittsburgh, and Norwich and Leigh Universities. A veteran of World War I, he held a commission in the reserves as major. He leaves a wife, Mrs. Emily (Hays) Jones of Clifton, Ohio, an associate professor of nutrition at the University of Cincinnati."

Carroll Benton writes as follows of the New York 1910 Class luncheon: "At our last luncheon (February 20), held at the M.I.T. Club of New York, the following were present: Hemmenway, Shaw, Dewey, Schleicher, Hague, G. Holbrook, Jacoby, Potter, and yours truly. Enjoyable time was had by all. It was our first luncheon there, and believe we will meet there in the future. Regarding next Reunion (the 50th), which will be here before you know it, I myself would prefer a place away from the Coast at that time — say a place like Toy Town Tavern at Winchendon. I think this is the sentiment of the New York fellows. Will try to write Jack Babcock or Hal Manson to that effect later on. Expect to leave for a trip through the South shortly."

I stopped in to see Otto Rietschlin last week. He is seriously considering retirement and going to Florida to live. He is going to spend some time there this spring looking for a location where he will enjoy his retirement. Yesterday, March 13, I had to visit the First Church of Rockport where I am commissioned to recommend methods of reinforcing the belfry tower. Al Huckins, who is on the Building Committee for the Church, met me and we climbed up to the top. It was a beautiful

day and the view of the ocean was wonderful. Al is enjoying his retirement, and I think I would also if I could live in such a delightful place as Rockport.

Last month I was more or less discouraged about news for the Class notes; perhaps I was tired, as news of the Class is always scarce. Nevertheless, I did get an inspiration. I thought of our classmate Achilles Hadji-Savva, who has had a most tragic life and whom I had the pleasure of visiting in Athens several years ago. The thought primed me to write him and ask him to write about some of his experiences during the last war and the insurrection in Greece. The letter brought an early reply. In his letter, as you will note, tragedy is still following him in the loss of his daughter. I met her when I was in Athens, and she was a lovely girl. I am sure that all of us extend our sympathy to Achilles and his wife. Also, he seems to have suffered material losses in the recent earthquakes in Greece. Parts of his letter follow:

"I do not know why and how I was, during the last few years, under the wrong impression that I had written to you about the great disaster in our family. We lost our only beloved daughter just after a short visit we had to England in the summer of 1953. We had left her in good health (at least we thought so), and, in about two months after our return to Greece, she passed away in November, 1953. Since 1955 we moved from Volos and are actually staying in a hotel in Athens. We seldom go and visit Volos, and that for a very short period. Earthquakes of 1954, '55, '56, and '57 (Volos had a very strong quake only yesterday) have caused enormous damages to our house in Volos, and you can imagine your retired friend (on pension since July, 1953) paying out of his \$150 monthly pension any odd sum for repairs. State loans were, of course, granted covering only half the expenses, ultimately reaching the sum of \$4000, and the quakes have not stopped yet. We are arranging to go to one of the Dodecanese Islands (Rhodes or Cos) after July 15 and return again to Athens by the end of September. I am sure Mrs. Cleverdon would like to visit, in company with us, the most beautiful islands of the Aegean. So choose and decide — either Athens with us till July 15 or Aegean Islands, again with us, after July 15."

The following is one of his experiences he endured during the war. "An old story always contains historical facts, but many such stories are history itself. Let me tell you one. March 1943. A railroad bridge was blown up by the guerillas somewhere in Thessaly, Greece. They used to call themselves 'anti-Italian' and 'anti-German' democrats, but we knew they were just pro-Stalin communists. I did not know why they had carried me away the day I went to repair the bridge till I was told later that this was because I, as the director of the Company, had *cruelly*(?) dismissed a workman, brother of the fellow who was the head of the gang that captured me, for stealing a can of olive oil from a poor 70-year-old country woman. I was court-martialled on the top of one of the surrounding mountains, but during the whole trial no mention

was made of the 'oil can,' probably because it was somewhat difficult to refute the argument that 'robbing an old poor woman is an anti-democratic act.' President of the Court: (Chewing dry figs and brown bread.) 'What is your name, age and country of birth?' Defendant: 'Hadji-Savva, 55, Poutus (Black Sea Coast).' President: 'You are lying. I have known many Poutians. They are all very good people. So you cannot be one of them.' Defendant: 'Since I must know the place I was born in better than any one else, and so actually am one of those good people you have known, may we not say, your Honor,' (but no — I called him 'fellow-fighter') 'that it was just a little mistake that brought me to your Court?' President: (After some whispering in the ears of the court members.) 'Not guilty.' But the 'water' — but no! it was 'sand' with the ancient Greeks — has already run out of my 'clepsydra' with only one story — and that half-told — so true, however, that it goes to make history itself.

"P.S. I hope our Tech Review will continue to be published for years to come and, if its readers are interested in stories, and if I am alive by that time, I shall still have a few more stories to tell them, but this time of our Italian and German enemies of yesterday, though I now consider them very good friends of today. Americans have always been, are, and *will be* my best friends *forever*." — HERBERT S. CLEVERDON, *Secretary*, 120 Tremont Street, Boston, Mass.

1911

One of our classmates, Louis R. Golden, VI — described in a Boston *Herald* obituary as "philanthropist, businessman, and leader in charitable affairs" — died at his home in Newton, Mass., February 19. He is survived by his wife, the former Carrie Rosnoski; a son, Dr. Theodore S. "Ted" Golden (prominent Framingham pediatrician whom I see at Rotary regularly on Mondays); three grandchildren, Nancy, Janet and William; and two brothers. A native of Boston, Lou was educated in East Boston High School and, as Art Leary, I, wrote: "As a pupil with me in high school years ago, he was a mild-mannered, pleasant young fellow, and we used to walk downtown together from M.I.T. The last time I saw him was at Snow Inn at our 40th Reunion."

He was associated with Kennedy's (famous Boston clothing store) for 35 years prior to retirement a few years ago, and, at the time of his death, was treasurer of Dayton Youth Wear, Dayton, Ohio; Youth Apparel Corporation, Columbus, Ohio; and Milwaukee Youth Wear, Milwaukee, Wis. He was very prominent in Boston Jewry, having organized and been chairman of the campaign fund for the Jewish Community Center in Brighton, and its president since its inception in 1955. He also was vice-president and trustee of Boston's Combined Jewish Appeal, and was general chairman of the appeal in 1948 when the largest sum in its history was raised. He was also vice-president of the Associated Jewish Philanthropies, vice-president and trustee of Beth Israel Hospital and Temple Israel, and vice-president

and executive committee member of the Jewish Family and Children's Service, all of Boston. Other positions were honorary president and former president of Boys Apparel and Buyers Association, executive committee member of the American Jewish Committee and national trustee of its joint distribution committee. He was a member of Belmont Country Club and the Redwood Lodge of Masons of Providence, R.I. Out of respect to his memory Kennedy's was closed from noon until 2:30 P.M. the day of his funeral.

Had a nice note last month, accompanying his fund contribution, from Allston T. Cushing, I, Kansas City, Mo. "You seem to like news re Eleveners children," he wrote. "Well, my daughter, Emma Mae, whose marriage I reported to you in '53, presented her husband a second son, John Cushing Forman, on December 1, 1956, in Tulsa, Okla. My wife and I were there from November 21 to December 24, and then we went to Longmont, Calif., where our younger son — the youngest of three children — was married on December 28. He and his wife live here in Kansas City, so now with all three of our children married, my wife and I are right back where we started nearly 36 years ago. We are on the lookout for a one-story house and have this house on the market."

Phil Caldwell, I, and his wife, Bobbie, sure had a tough break in the latter half of February when their new home in Wilton, Conn., burned to the ground — a complete loss. Fortunately, they had stayed at their in-town Manhattan apartment that night after attending an evening function, else they might have been trapped in the flaming house, Phil wrote. Many of you doubtless remember Laurence C. "Larry" Hart'13, Johns-Manville executive and executive vice-president of Junior Achievement, Inc. He spoke at Worcester Rotary recently, and Hal Robinson, I, said he impressed his audience immensely. I heard him a year ago, giving me an opportunity to renew acquaintance with him, and he is a splendid speaker — hale and hearty as he was at Tech. Hal added that he was "leaving March 20 for the West and Northwest and will plan to call on Bert Fryer." I sent him a list of the baker's dozen Eleveners in the West and Northwest so he could make more calls.

Ed Woodward, VI, now living at 876 Chattanooga Avenue, Pacific Palisades, Calif., writes that "after two years' residence, I am now convinced that California is 'the greatest state in the nation' — why not come out and see us sometime?" Ed, you know, was on the editorial staff of *Railway Age* until the publishers (Simmons-Boardman Publishing Company) transferred him out there as Pacific Coast editor. Ina MacPherson, wife of Roy MacPherson, II, and I started plans some time ago for a Golden Anniversary of the Framingham High School class of 1907 — in which Roy and Dave Allen, II, now in Washington, and I graduated. Now plans are jelling and we plan it for Friday, June 14. It has been quite a task lining up addresses, but only three graduates appear on the "no address" list.

At this mid-March writing we have the January 31 Fund figures, and 1911 still stands well on the per cent of class con-

tribution, being tied for second place with 1899 at 43 per cent — 1897 has 46 per cent. Whenever you meet a classmate and find he doesn't get the Technology Review and the Class notes, just remind him the way to get on the subscription list is to send in a contribution to the M.I.T. Alumni Fund.

Two address changes, neither involving a change of place: George A. Cowee, III, Box 665, R.F.D. #3, Merritt Island, Fla.; and Robert E. Morse, VI, 28 Constantine Place, Summit, N.J. Class notes are shorter than usual this month — but that can be taken care of, you know. Just make it a habit to "Write to Dennis" more frequently. Don't forget Alumni Day at M.I.T. is on Monday, June 10, this year. See you there! — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Framingham, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

1912

Word has just reached us of the death of Ernest Nicholson who passed away in February at his home at 375 Riverside Drive, New York City. Ernest had been with the Aetna and Casualty Insurance Company for more than 32 years. Last October he was operated on for a brain tumor from which he never recovered. He was a life member of the American Society of Civil Engineers, and, during the second World War, served as chief engineer for the Marine Division, U.S. Army Engineers. He is survived by his wife, Jane, and two sisters.

Ed Holbrook writes from Miami that after retiring from U.S. Steel Export Company in 1954 he left New York and is now well established in Florida. He did some consultation work for awhile but is now a member in good standing of the ranks of the unemployed, keeping busy with his personal affairs. He hopes to get North for the reunion in Harwich Port in June. Professor Erwin H. Schell is mentioned frequently in the news. The last clipping tells of his addressing top management at the conference of the Boston Management Club, discussing industrial management. He is leaving for Australia soon and will not be home in time for our reunion.

Martin C. Cherry has retired as vice-president of the New Hampshire Fire and the Granite State Fire Insurance Company. Martin joined the company in 1928 and, after two years as special agent attached to the Boston office, became state agent, then secretary, and later vice-president. He has always been active on various rating association committees, and edited his Group Multiple Peril activity. The Jay Pratts have been spending a month at Acapulco, Mexico, where they escape Chicago cold weather every year. They plan to be at the reunion in June. — FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston 8, Mass. LESTER M. WHITE, *Assistant Secretary*, 1230 N.E. 102d Street, Miami 38, Fla.

1914

Elmer E. Dawson, who for many years has been treasurer of E. D. Jones and

Sons, paper-machinery manufacturers at Pittsfield, Mass., has also recently been elected a director of the Compo Shoe Machinery Company of Waltham, Mass. Well-earned honors continue to come to Donald Douglas. He has received the Elmer A. Sperry Award for "distinguished engineering contribution through development and production of DC series of airplanes." This is a joint award by four top technical societies.

Art Peaslee became disgusted with the unusually bad winter weather in Hartford, Conn., and flew to the West Indies to spend the month of March absorbing sunshine there. His very active construction business usually keeps him busy in the summertime, but it has its compensation by permitting him to go to South America or other warm climates each winter. Did you see the several full-page advertisements of Jim Holmes in *Fortune*? Jim heads the construction firm of Holmes and Narver of Los Angeles. This company has become one of the large construction companies of this country.

Have you made your contribution via the Alumni Fund for our 50-Year Fund? The current Fund Year is just closing, but there is another year starting next fall. If you cannot make a contribution this spring, plan to be generous in the fall. — H. B. RICHMOND, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass. H. A. AFFEL, *Assistant Secretary*, 120 Woodland Avenue, Summit, N.J.

1915

What a class! On January 25, these 29 classmates from far and wide braved a winter storm to gather at The Chemists Club in New York for our Annual Class Dinner: From Metropolitan New York City, Ralph Hart (who flew up from Havana), Jerry Coldwell, Bill Campbell, Hank Marion, Chauncey Durkee, Chris Wolfe, Bur Swain, Fred Stetson, Howard King, Alton Cook, Fred Cook, Charlie Williams, Ray Walcott. From Philadelphia came Sol Schneider, Larry Bailey, Dick Bailey, Ed Whiting. From away up in Connecticut, Orton Camp, Stan Osborne, Larry Quirk. From Boston, Pete Munn, Pirate Rooney, Bill Brackett, Frank Murphy, Wally Pike, Larry Landers, and me. The two long-distance prize winners: Phil Alger from Schenectady and Ben Neal from Lockport, N.Y. Greater loyalty hath no men! After an hour of cocktails, we enjoyed an excellent dinner and had an informal talk around the table, particularly about our 50th Capital Gift Fund. Chairman (of this) Ben Neal made an impressive and impassioned appeal, supported by much discussion, led by Ralph Hart, Jerry Coldwell, Phil Alger, Orton Camp, and others. This represents a great deal of interest and encouragement to Ben for his campaign, soon to begin.

All the Boston gang and several others stayed over at the Club, so after dinner over half those attending gathered in one suite for a night session of reviewing the old days, Class, M.I.T. affairs, and a taste of the fortified waters on hand. Again we owe and acknowledge many warm thanks to Larry and Hank for the monumental job they did in putting on this dinner and

meeting for us. Larry commuted to New York to collaborate with Hank who, in his thorough and relentless way, roused our classmates to attend. A hard-working and efficient committee, these two guys, who will have the perennial job of putting on our annual New York dinner. Well done! Unfortunate last-minute cancellations robbed us of the pleasure of having some other classmates with us. Sam Berke, always active, was laid up with a cold. In contrast, from Palm Beach, Jim Tobey wrote: "As much as I would crave to be at the 1915 festivities in New York, my enforced (?) absence in snowless Florida will prevent. I hope some of you plutocrats [Who? Us?] get down here to explore the Platinum Coast or Pirates' Paradise." Even with his sense of humor, I can't feel too sorry for him. (As I write these notes there is snow all over Memorial Drive in front of M.I.T. — the Charles River is frozen across to the Boston shore and the temperature is 20 degrees! Br-r-r.

Bill Spencer wrote from 213 Cedarcroft Road, Baltimore 12: "I have just written Hank that it will be impossible for me to get to the New York dinner of 1915 because it again conflicts with our annual Bobby Burns Dinner of the Baltimore St. Andrews Society. My duties as V.P. require that I take part in my kilts, and I must be on hand when the ladies ask, 'What do you wear under the kilts?' I was very glad to receive your note and the enclosed picture of the 40th Reunion showing the Course IV2 fellows. I have made some shots which I have been threatening to have prints made from the transparencies. When I do, I shall send some of the better ones to you. All is going as usual here in Baltimore. My company, Consolidated Engineering Company, is fortunate in being constantly called in by the large industries like Pittsburgh Plate Glass, Western Electric, Davison Chemical, to construct and equip their new facilities. We also pick up much local business, and so our total for the year has been more than previously. I spent a week at Dennisport on the Cape last summer and was delighted to run into Ben Neal at one of the dinner clubs. It was a pleasant surprise, and we had a nice short chat. I do not see many of our classmates down this way, and that is why I shall miss being with the group on January 25. Give my best regards to all, and I may be able to get up to Alumni Day in June — also my best to you and your nice wife."

A nice letter from Doug Baker, retired in East Middlebury, Vt.: "Your card announcing the New York Class dinner on January 25 has been forwarded to me from the office. I had a vague hope that the 1915 dinner would come within two or three days of the date when there is a company affair that I have to attend, but the latter will take place on February 6. I really have to be there this year and bring myself up to date on what has happened in the past six months. Not that they are not getting along all right; both the company and I appear to have survived my retirement quite successfully. If you happen to remember my reason for not getting to the Class dinner in November at Cambridge you will think that I

am lacking in imagination, but, actually, M.I.T. and I.T.T. have an uncanny propensity to arrange things so that they do not conflict but neither do they come close enough together to take in both in one trip. Next year I shall try to make the Class Dinner and thereafter alternate between the two winter events to which I look forward with most enjoyment. In the meantime, this brings my best wishes to all who will be fortunate enough to be at the Class Dinner on the 25th."

At the dinner Phil Alger spoke about Mrs. Dugald C. Jackson's 90th birthday on February 8. Our Class sent her a letter of congratulations. While on the West Coast at Christmas time, Weare and Kath Howlett visited Ruth Place at Pasadena and found her as gay and cheerful as ever. Good for Ruthie! As a wedding gift to Virginia Thomas Johnston our Class sent a silver plate appropriately engraved "To Virginia — our Class Baby — from M.I.T. 1915." In acknowledgment of this, Virginia wrote this sweet letter from 140 Littlebrook Road, Princeton, N.J.: "To the very wonderful Class of 1915: Your lovely present has just arrived, and I am deeply touched by it — I am very proud to be your 'Class Baby.' Thank you all for the beautiful silver plate — we shall not only have pleasure in using it but in thinking of you and your kindness. Paul and I are looking forward to coming up to the reunion in June. I am anxious for him to meet you and, of course, proudly having you meet him. We hope any of you who are near Princeton will come to see us. With my best wishes and appreciation, Sincerely, Virginia."

In answer to some reunion pictures I sent, Carl Wood wrote: "I can add these pictures to my long list of old Class memories. It was only a few years ago, but I didn't realize I could develop such an old worn-out look in such a short time. I am glad we still have a few young-looking characters in the gang — not mentioning any names." On January 1, 1957, Jerry Coldwell stepped up to chairman of the Board of Directors of Ford, Bacon, and Davis, Inc., New York City. Jerry has been with the firm since 1926 and had been president since 1949. Jerry directed the operation of the famous Arkansas ordnance plant in Jacksonville, Ark., and certain phases of the Oak Ridge, Tenn., project.

Ben Neal has done a big preliminary job in selecting sponsors and a committee for his 50th Capital Gift, and, as soon as we have the stationery for him, you may expect to hear from him. Think of Joe Livermore over there in Scotland, from where he wrote to Ben: "You may be surprised to have a reply from Scotland where I came three months ago to push through the three-million-pound rehabilitation of our North British Plant of the U.S. Rubber Company. I brought along the colored slides made at our 40th at Falmouth, and often get them out to see the old gang after 40 years. They are a rugged bunch of boys. Please give my regards to any of 1915 you may see. Fred Waterman, a vice-president of Stone and Webster, called on me not long ago in Edinburgh. I hadn't seen him since we graduated, but I knew him as he came in. Your letter of November 13 was for-

warded and has just reached me. With best wishes for a Merry Christmas and a successful New Year."

This is the first chance I've had to acknowledge the Christmas cards Fran and I received from 34 classmates and their families. It's wonderful to be remembered in such a warm and friendly manner at holiday time, and we are always deeply moved by and deeply appreciative of this sentiment from classmates. There are a number of interesting messages on the cards which will be material for next month's notes because nobody will "help Azel." — AZEL W. MACK, *Secretary*, 100 Memorial Drive, Cambridge 42, Mass.

1916

All set to go? Where? To the 41st Reunion, of course! How they do roll around! Our President, Ralph Fletcher, announces the place: Chatham Bars Inn at Chatham, Cape Cod. The time: Tuesday and Wednesday, June 11 and 12, following Alumni Day in Cambridge, on Monday, June 10. *And the ladies are invited!* More details will be coming through the mails, but the basic facts as given above were all decided at a meeting of the Executive Committee in Joe Barker's Chrysler Building office in New York on March 5. Those present: Joe Barker, Bill Barrett, Harold Dodge, Jim Evans, Ralph Fletcher and his secretary, Honorary Member Bob O'Brien, Izzy Richmond, and Steve Whitney. Plans were also laid at that time for a Class dinner in New York on May 1, with Joe Barker, Jim Evans and Bill Barrett as the arrangers.

Frank Hastie explains why his absence from the 40th, and a good reason it was: "A conflict of dates with my next youngest son's, Neal, ordination as Deacon in the Episcopal Church. The ceremony was at the Washington Cathedral. In December, Neal was ordained priest and is now rector of St. James in Roxbury. My youngest son, Clem, is attending the Harvard Business School. He was married in December 1955 to a very nice girl from Columbus, Ohio, Jane Hicks. Her father, Dr. Hicks, an internationally known ecologist, died very recently. My oldest son, Grant, Jr., is in the Army in Germany. He likes his work, the scenery, and the German beer. Cora, my only surviving daughter, is now the proud mother of a baby girl whose older brother, Richard, is my only other grandchild." Frank goes on to say that since he had to retire in '55, he has confirmed what he always believed, namely, that a loafer's life is the life for him. He finds that "sleeping, eating, driving, visiting, bowling (duck pins, of course), walking my dog, playing bridge, gin, cooncan, and doing crossword puzzles, double crostics, and piddling jobs around the house keep me well occupied."

Someone we hadn't heard from for a long time until recently was Este Fisher, who has called Baltimore his home since way back. After graduation and until World War I began for us in May 1917, he started out as a draughtsman ("a very raw draughtsman, as you may imagine") with Kenneth M. Murchison, Architect, in New York. Then in the U.S. Army,

AEF France Summer Artillery School 6th F.A. 1st Division S.A.S. Instructor, and out as captain, F.A.U.S.R., in February 1919. Then for four years as a draftsman, two years as a partner, he was with Parker, Thomas and Rice, Architects, Baltimore office. From 1927 to date, he has been with Taylor and Fisher in general practice, mostly commercial and institutional, including over 40 projects for the Chesapeake and Potomac Telephone Company. His firm is regularly engaged also by Baltimore and Ohio Railroad, Baltimore Gas and Electric Company, Federal Reserve Bank of Richmond, Baltimore City, Baltimore County, etc., etc. He notes: "Parker and Rice died in the early '30's; R. E. Lee Taylor, M.I.T.'07, in 1952; present partner, Warren A. Bowersack; associated, Hugh M. Martin (former partner of Roubush of New York). I don't often seem to see M.I.T. men except Bill Spencer'15 of Consolidated Engineering Company here. Well, cheerio — this is a lot from me." And cheerio to you, too, Este, and we're sure the other architects will be interested in your story.

One of the finest things we've seen is a little reprint that bears the title "Since King David's Time," on the subject of science and religion — do they conflict? This is an excerpt of the remarks made by none other than our own Bob Wilson in a talk before the Chicago Sunday Evening Club in the spring of 1956. A solid little message that should be most helpful to some of the young and old people of today. We presume you can get a copy by writing to Bob at Standard Oil (Ind.), 910 S. Michigan Avenue, Chicago 80, Ill.

We have an accounting from Flipp Fleming who retired from Goodyear Tire and Rubber Company about a year ago after 40 years of service. He notes that secretaries are very helpful in a lot of ways at the office, but many years of dictating make one forget how to write and to spell. Says Flipp: "Twenty-five years I spent in the field of production at Akron and California. The last 15 years I spent in Akron in general merchandise and inventory control. We scheduled all factories and distributed the finished goods. Supervised warehousing and shipping, traffic, and a control over raw material inventories. In retirement I find I am busy all the time. In the summer I work in the garden a few hours a day. We have made several trips, one to Alaska, another to Bermuda, and just returned from a trip to Dallas, Texas, where we spent Christmas with our son, Bill, and his family. On these trips I have met some M.I.T. boys and had a nice visit with them — Neal E. Tourtellotte in Seattle, Wash., Irv McDaniel in California, Jack Freeman in Bermuda, Dina Coleman in Lexington, Ky., and Ernie Gagnon in Hurtsboro, Ala. We have two children. The son in Dallas, Texas, is vice-president of the Farr Park National Bank. They have two children, a boy and a girl. The daughter lives in Cuyahoga Falls, Ohio, and has four children, two boys and two girls. Her husband is a patent attorney at Good-year. Margaret and I plan to travel some more and are now working on a trip to Florida and Cuba about the middle of March."

While on a business trip in Montreal

late in February, your Secretary talked on the phone with Aime Cousineau — lone 1916er in Canada, if our records are correct. Was unable to accept his kind invitation to have lunch as his guest at the "Cercle Universitaire" (University Club). Aime has lived and continues to live a very active life. He was for many years head of the Planning Department of the City of Montreal and, since retirement on pension from that job in 1955, has been keeping busy on consulting work at his downtown office in Montreal, has taken a two-month trip to Europe, and plays golf whenever he can. He advises all of us who approach retirement "to be sure to keep busy — it's a must." He hopes to get to the reunion in June.

In various places we read accounts of one or more classmates who are getting on in years with 35 and sometimes 40 years of service in this or that organization. One such account appeared in the January issue of 195 *Broadway*, an employee magazine of the A.T. and T. Company in New York, with the following summary: "Leonard Stone, Personnel Relations, 35 years, January 30 . . . M.I.T. graduate . . . joined A.T. and T. after Marine Corps duty in World War I . . . on first job engineered move, and established clerical services, of newly organized Development and Research Department into 205 Broadway . . . in 1929 went to chief statistician's division to develop statistical methods for associated companies . . . worked on early development of employee attitude surveys . . . joined Personnel Relations in 1951 to continue this type of work . . . golf, bridge, and a home workshop (Mrs. Stone is production manager) more than fill any spare time between visits to and from the children and seven grandchildren."

Word from Phillips Brooks states he retired in 1955 from the Drafting and Design Division, Submarines, Portsmouth Naval Shipyard. Present hobbies, recent activities, and interests include house design, modern building materials, a study of line voltage effects on TV performance, and preparation of plans for a new small firehouse. A special hobby is small boat building, particularly the materials and construction of small boats, one result of which is an eight-foot boat weighing only 90 pounds that he has designed and built.

Paul Pizzorno writes from down in Chattanooga with enthusiasm regarding the Reunion. He says that emotions and feelings as far as he knows can't be expressed by comparative figures, but that they can produce an impact and he's here to say that he had been most pleasantly impacted by the 40th. He then goes on to mention "pleasant and unforgettable memories which will live with me forever; the only sad note was the fact that some of our dearest friends have gone forever from our midst." He attended the Alumni Day celebration and luncheon, but mentioned especially the Class Cocktail Party, "where I had a very enjoyable time in the company of such gracious ladies as Mesdames Joe Barker, Al Lovenberg, Ralph Fletcher and Steve Berke. It was a very congenial and pleasant affair, with Jim Evans as a superb M.C., Ralph Fletcher as a good-natured host,

as usual, and with Joe Barker as his assistant." He spent the rest of the week vacationing with his wife at Sea-Isle, N.J., then returned to "the usual everyday grind with the Tennessee Valley Authority and its many problems in the design of primary outdoor electrical substations. But just now we are concentrating on the development of new designs of buses and fittings to replace expensive copper with relatively cheap aluminum, to be used in heavily loaded buses in 13 kilovolt outdoor substations with load up to 8,000 amperes per phase and incredible short circuit currents with their inherent high magnetic stresses between buses. The largest bus, as of today, is an 11-inch integral web aluminum channel, but those eager aluminum boys are bringing out so many new aluminum alloys with better current capacities, that it's a task to keep pace with them in our switchgear designs."

From up in Canajoharie, home of Beechnut products, we have an interesting letter from John Gore with a kind word for keeping this column full and a decision to help the cause along: "Same company (Beechnut), same city, same house, same family, same interests — nothing new except we all seem to be getting older, and we note with sadness a friend or relative every so often dropping by the wayside. It makes me think! We are all getting near the retirement age when we can take things a little easier. When that time comes I think we should all take our annual reunions a little more seriously, as we will then have the time to do such things — won't have to worry about 'taking time off' or 'getting back on the job.' I enjoyed the last reunion very much, particularly the display of azaleas and rhododendrons — of course, second to meeting one's old classmates! Just as a suggestion, why not invite the wives along on one of the 'off-year' reunions? This would make a friendly social affair, like going to a hotel where every guest is a friend that one knows! Still enjoy my hobbies — bird hunting, summering in the Adirondacks where swimming and canoeing are side sports, vacationing at Cape Cod and Cape Ann where one can get a whiff of the salt air. I am also keeping up my interest in scouting. We should all be doing something for the young people coming along in Scouting, Y.M.C.A., church, etc. Well, enuf for now."

Word from Berthoud Bolton has a strong note of pleasure regarding his return, two years ago, to aviation after eight years in the farm machinery game (including a period in which he was chief engineer of Deere and Company's new big plant near Des Moines, Iowa). Now he's executive assistant to the vice-president for engineering of McDonnell Aircraft Corporation. He says: "Mr. McDonnell and several of the present top engineering executives and I were together at the Glenn L. Martin Company of Baltimore during the '30s, so joining the organization was like coming home. Designing and building supersonic aircraft, missiles, and helicopters is interesting, challenging, and exciting. My work is unusually interesting and varied — essentially administrative, trying to help make a rapidly

developing organization grow along sound lines. I have over-all responsibility for training in Engineering (an organization of 3,500) and for maintaining and developing good morale—endeavoring to put a personal touch in the handling of so many people, trying to make our engineers feel that they are individuals and not one of a mass. A very interesting facet of my work is the development of a college relations program. This fall we visited 60 colleges, not for recruiting, but to exchange ideas with the deans and department heads and assist by supplying quite a variety of material for and use by the students. I particularly enjoyed my visit to M.I.T. and seeing our good friend and classmate Shatswell Ober enjoying life in the aerodynamics department.

"My special pride is my son, John, now finishing his junior year at Michigan State College where he is specializing in music. What he can do with a flute! In a modest way, I would put him up against any of our Class's progeny. His four older sisters are well and happy. Two are married, one living in Fresno, Calif., and one in Washington, D.C. Two are in New York and provide happy reunions on my trips East. One of these days, in the not too distant future, I suppose I will have to give up the 48-hour weeks and retire. I have been toying with the idea then of a little university teaching. P.S.: I have six grandchildren. How many of you can beat that?" (Just how many we don't know, but records at hand so far show Hovey Freeman, 16; Emory Kemp, 11; Earl Mellen, 11; and Bob Wilson, 8. Signed, Secretary.)

We regret to report the passing of Harold White late in January in Winchester. He was a professional engineer for more than 30 years with Stone and Webster and completed various research projects that contributed valuable aid to World War II. He was a member of A.S.M.E., of the Men's Club of the First Congregational Church in Reading, and of Post 62, American Legion. We also regret to report the death of Earl Edwards in December in Medford. He was a resident engineer for the Commonwealth of Massachusetts at Worcester State Hospital. Expressions of sympathy have been sent to the widows of these classmates.

Here are a couple of news releases: In January the Hartford Times reported that Vertrees Young, 1915 Trinity College Alumnus from Louisiana, had given his alma mater \$24,500 for the establishment of the Vertrees Young Scholarship. Earlier, he had established the Vertrees Young Foundation at Trinity. As we all know, Vert is president of Gaylord Container Corporation, division of Crown Zellerbach Corporation. Joe Barker was on the program of the 1957 Annual Meeting of Members and Techno-Sales Conference of Bituminous Coal Research, Inc., in April, White Sulphur Springs, W. Va. His contribution: The meeting's feature address at the members' annual banquet, "The Selection of Research Ideas with a Financial Future." In January Charlie McCarthy was appointed by President Eisenhower as a member of the National Advisory Committee for Aeronautics, the government's foremost research committee in the aeronautical

field. The associates on this committee will include General Jimmy Doolittle as chairman, Vice Admiral William Davis, U.S.N., General Nathan F. Twining, and Captain Eddie Rickenbacker. We're proud of you, Charlie!

That winds it up until Reunion time at Chatham on June 11 and 12. From all reports, the expected attendance for an off-year is distinctly on the high side. So, decide now to come along. The Chatham Bars Inn has everything—ocean front cottages, spacious sandy beach for full-length sun bathing and just plain sitting, surf bathing for the more venturesome at the "outer bar" in Atlantic waters tempered by the Gulf Stream influence, a fine golf course, tennis courts for those who still insist, New England fare with Cape Cod's delicacies of the sea, all in a delightful atmosphere of good taste and club-like surroundings. So, come! You really can't miss. And the ladies will be delighted. Remember—reunions are getting more and more important year by year. Finally, thanks to so many of you who have written in. Keep up the good work by writing a little and writing often to keep the column full.—HAROLD F. DODGE, Secretary, Bell Telephone Laboratories, Inc., 463 West Street, New York 14, N.Y.

1917

The *Phillips Exeter Bulletin* for January 1957 contains a group of photographs taken at Andover and Exeter which are outstanding. On getting in touch with Dick Loengard he confirmed that the photographs were taken by his son, John, Phillips Exeter Academy, '52. "Johnny has had quite a number of pictures published in *Life* and other places, and has recently been taking some pictures for Harvard in connection with their drive for an additional dollar or two of endowment. You correctly surmised I have gotten a kick out of the pictures. Our family is busy these days answering questions as to whether we are the brother, sister, mother, or father of John Loengard."

On March 1, Win McNeill announced his association with the recently organized firm of industrial consultants, Calkin and Bayley, Inc., 50 East 41st Street, New York City. Win will continue to serve previous clients, and certain new ones, as a private consultant. Ed Warner, President of the International Civil Aviation Organization Council, was recently the recipient of the Wright Brothers Memorial Trophy for 1956 for continuous achievements over a broad range of aviation since 1917.

Enos Curtin writes: "I read the 1917 Class notes with interest, particularly that public relations job Win did on me and the American Field Service. What he failed to mention was that on my telling him all the problems connected with the rapid growth of the program (we expect 1,000 kids each way next year), he very generously volunteered to do a management survey. The survey involved a couple of weeks' time and has been invaluable."—RAYMOND STEVENS, Secretary, 30 Memorial Drive, Cambridge, Mass. W. I. McNEILL, Assistant Secretary, 50 East 41st Street, New York City.

1918

While the spiritual descendants of George Washington prepared to shout "timber" as the cherry tree comes down, your scribe discovered Columbus—Ohio, that is. The occasion was the annual ladies' night of the Columbus Technical Council, and the prime mover was one James Arthur Flint, Vice-president of the Council (president-elect) whose responsibility it was to see that the occasion was provided with succulent groceries, pleasant surroundings, and a speaker. Due to the indifference of the New York Central Railroad, the connection in Cleveland was missed by an hour and a half, thus depriving me of the chance to visit the Jeffrey Manufacturing Company over which Jim presides as vice-president in charge of engineering and development. It was a blow, but not enough to entirely destroy our bubble of gaiety. We did get out to his house. The design and construction are a logical and constructive result of courses in machine design, strength of materials, and flow of materials. Reading from bottom to half way up—I did not get to the top—there is a well tooled carpenter and machine shop in the cellar, a lovely staircase in the front hall, and as nice a living room as ever contained a singularly serene and gracious host and hostess.

At the hotel we met Leslie Howard Marshall of chemical engineering. Because of the long trek to and from Walham every day he was not active in extra curricular affairs way back when, but the habit of zealous travel is still with him. March 1 he was to go to Arizona, and May 1 he is to be off toward Europe. What makes possible all this defying of vastness with auto and plane is his manufacture of pyrometers (remember, those thermo-couples that can measure really hot stuff), his principal customers being brass, bronze, and aluminum foundries. Marshall says that Clarence Earl Richards, who departed from Cambridge with a diploma in architecture, is in a Columbus hospital. Earl had retired down in Cocoa Beach, Fla., but some serious and stubborn illness brought him back to Ohio where more specialized medical attention is available. At last account, there had been an exploratory operation.

Another happy memory of my discovering Columbus was meeting Rolf Morral '32 again. Because of memory effaced by time I did not recognize him, but he pulled from an inside pocket a neatly preserved paper written in the fateful year of 1929 for my course in humanics. *Annuit coeptis!* Just in case some classmate of his chances to read here, Morral is now at the Battelle Memorial Institute in Columbus. We see by the papers that Marvin Pierce, who stemmed from Dayton, Ohio, graduated from Miami University before coming to M.I.T., and who long ago forsook civil engineering for the publishing world, has stepped up from president of the McCall Corporation to become chairman of the Board. The forces that determine men's lives brought Carleton Tucker and me together on the M.I.T. campus in mid-February. He was on his way, for the 40th year, to catch the train to Whitman from South Station. Since his heart attack he

moves with deliberate caution, but is still serviceable. Indeed, beside the Electrical Laboratory at the Institute, he has a class of telephone engineers at the Franklin Street headquarters of the New England Telephone and Telegraph Company Transmission School. So far, his own life currents have been transmitted to one grandchild. Dwight P. Spencer, who was for awhile a student in physics, died at Bartonville, Vt., last September, where he was in retirement. I have no further details. — F. ALEXANDER MAGOUN, *Secretary*, Jaffrey Center, N.H.

1919

George Michaelson dropped into the office to say 'hello' one day recently when on his way through New York. He was en route to Puerto Rico for what he averred was a much-needed vacation. But we thought he looked great! A card from Elliot D. Way announced that he is now located in Greensboro, N.C., where his company's products are being manufactured by the Newman Machine Company. His address is 406 N. Mendenhall Street.

Had a nice letter from Earle E. Richardson indicating that his recently mentioned retirement won't be just plain rest. He plans to "do a limited amount of consultation in the field of Spectrophotometry." And he says that while he doesn't intend to set up a commercial testing laboratory himself, he does plan to assist those "having equipment covering the spectral range of (200-1000)+ millimicrons, using instruments sold by Beckman, Applied Physics, General Electric, and Warren Spectracord organizations. That ought to keep him busy! What he didn't mention but we gleaned from the Rumford Falls *Times* of Rumford, Maine (Earle's home town), is that in addition to being a leader in his field, he also has extensively contributed to improvement of the apparatus used in the field, and holds over 20 patents dealing with the absorption of ultraviolet radiation.

Saw some handsome brochures recently that Leon H. A. Weaver had worked up for Raymond Concrete Pile where he is editor. Good work, Earle! Harold F. Marshall has been promoted from lieutenant colonel to a full colonel. Congratulations, Harold! William H. Bassett, Jr., advises that he has finished up at the Aberdeen Proving Ground and his address now is 45 Popnam Road, Scarsdale, N.Y.

Judging by the lengthy item in the *Valley News* of Lebanon, N.H., Daniel H. Brown has things jumping politically up there. And down in West Monroe, La., Jacob M. Carter, Jr., who is owner of the Nehi Bottling Company (also Royal Crown Cola Company), has an edge on the Cola market in what is a heavy soft-drink market, we understand. We quote him: "The object of any business should be profit, and profitable operations should be placed ahead of mass distribution and selling." — E. R. SMOLEY, *Secretary*, The Lummus Company, 385 Madison Avenue, New York 17, N.Y.

1920

David P. Brown was recently elected president of the American Bureau of

Shipping. He has devoted his entire business career to the Bureau, rising through the ranks to chief surveyor before being elected senior vice-president in 1950. The importance of the Bureau is pointed up by the fact that merchant vessels now in existence are at an all-time peak as to number and tonnage. About 29 per cent of the total tonnage now in existence is oil tankers. Gerald Mains has moved from West Chester, Pa., to Yorklyn, Del. E. G. Wilson has a new address, 43 Vaughn Avenue, Newton Highlands, Mass.

Because your secretary has the good fortune to represent the M.I.T. Club of Cuba on the Alumni Council, he felt it his duty to attend the M.I.T. week end in Havana, sponsored by the Club last February. George and Helen Dandrow made a major contribution to this gala event, as you would expect. I regret to report that the Bugbees and the Dandrows were the only members of M.I.T.'s most distinguished class present. We had a very fine time along with some 50 M.I.T. Alumni and their wives, and all I want to say is that as and when there are similar opportunities to visit Havana under M.I.T. Club auspices, you had better take advantage of them. The affair was under the able direction of A. H. Rodríguez of the Class of '21, and he proved such a delightful host that I could not help wishing that he were a member of the Class of 1920. Certainly he would be right at home with our group which is more than you could say for some of those 21ers.

Mrs. Bugbee and I then spent a happy week at Frank Badger's pleasant and comfortable apartment motel at Hollywood Beach, Fla., and in common with Foster Doane, we can highly recommend it to classmates visiting Florida and preferring comfortable and homelike surroundings rather than the super fancy establishments a little further south. Needless to say, Frank and Winnie Badger looked out for us in great shape, and we enjoyed our visit with them immensely. While there, I had hoped to get in touch with Henry Dooley, but he has recently left Ft. Lauderdale and moved to Coral Gables. His new address is 2716 Cordova Drive, and you should address him as Commander.

Perk Bugbee reports the arrival of his seventh grandchild, a girl, Lois Atherton, born early in March. Can any of you match this record? If so, let's hear from you. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

1921

This is probably our last reminder to reach you before members of the Class of 1921 meet on Alumni Day, Monday, June 10, on campus in Cambridge. We will definitely gather with wives, families, and guests for luncheon in Du Pont Court at noon and will sit together at the evening banquet in Rockwell Cage. As these notes are being assembled, it has not yet been determined whether we will have a cocktail party of our own just before the banquet or will join other Alumni on the lawn and terrace of Kresge Auditorium. Watch this column in the June issue of *The Review*, and look for last-minute announcements on the bulletin board with the Class roster of those present in the

Rogers Building lobby on the morning of June 10. You will find the detailed program for the day elsewhere in this issue. Don't miss this opportunity to see the continued amazing growth of M.I.T., to attend the morning conferences on physical sciences, to see the dedication of the Karl Taylor Compton Memorial Laboratory of Nuclear Science and Electronics, to be with old friends in our class and neighboring classes, to hear the Boston Pops with Arthur Fiedler conducting, and to enjoy the superb cuisine at both luncheon and dinner. It's a day you'll never forget, whether you've been to all of the previous ones or this is your first home-coming in our 36 years away from the friendly surroundings of our undergraduate days. Return the envelope order blank to the Institute promptly for tickets to the luncheon and dinner to assure being with the rest of the Class. But reservations or not, come anyway and join the 55 men from 1921 who have already indicated that they plan to be on hand.

Ernest Henderson is the next of our famous sons to have a special television debut. For two successive mornings, Dave Garroway's program, "Today," originated in the main ballroom of the newly-completed 23-story Sheraton Hotel in Philadelphia's new Penn Center, near the site where the Broad Street Station was located. The huge program celebrated the opening of the hotel, the first to be completely built by the Sheraton Corporation of America, of which Ernie is chairman of the Board and Robert L. Moore is president. On the first morning of the gala television show, Ernie was seen arriving at this last word in modern hostilities in a coach-and-four from New Jersey's Sea-brook Farm. This year's prize-winning Mummies Parade string band livened the following morning. Guess Bob Moore must have been back home in Boston, tending store, for we did not see him make an appearance. Congratulations, fellows; we'll sample the new Sheraton hospitality next time we visit the City of Brotherly Love.

Louise A. Orlando, capable secretary to our worthy Class President, Ray St. Laurent, makes her debut as a contributor to this column with the following item, headed "Babies and Business Too," which she culled from *Charm* magazine: "News for women scientists: There'd be no need for you to swap beakers and Bunsen burners for diapers and dishpans if you worked for Union Carbide and Carbon Corporation. At least that's what we hear from Dr. Augustus B. Kinzel, Union Carbide vice-president in charge of research, and active campaigner for bigger and better job opportunities for women chemists and physicists. In his latest release, Dr. Kinzel explodes the myth that female scientists are a poor investment for industry, points with pride to the many women in his company's research laboratories who are married, have young children and successful careers." Appropriately, a twin article appeared in the February issue of *Research and Engineering* in the form of an interview with Gus in the "Face to Face" series. The lengthy illustrated article touches on the duties of a vice-president in charge of research, the optimum size of a research and development labo-

ratory, the pros and cons of contract research and foreign recruiting. Gus is heralded as one of the nation's leading research metallurgists who pioneered in the theory of stainless steels. Recently he spearheaded the research that led to the development of Union Carbide's new process for making titanium. He has served as a consultant to the various Atomic Energy Commission's installations. A holder of doctorates in science and metallurgy from the University of Nancy, France, he has lectured extensively here and in Europe. He received his first degree with us in Course IX-B; later the A.B. *cum laude* in mathematics at Columbia, and an honorary D. Eng. degree from New York University.

When *Time* magazine prepared its article on "The New Age of Railroads" for publication last January, the editors sought out some seven presidents of as many major railroads, two of them being M.I.T. men. The beautifully illustrated story quotes our own Jack Barriger of the Pittsburgh and Lake Erie on the subject of the allegedly archaic system of regulations enforced by the Interstate Commerce Commission: "The current rules are as economically stupid as 18th century medicine. They are killing the railroads. If General Motors had to wear our uniform in this league, it would be busted in two years." William C. Wade, former captain in the U.S. Navy, has opened his own naval architectural firm, W. C. Wade Associates of 1624 Eye Street, N.W., Washington 6, D.C. William Wald, who is associated with Sumner Schein's architectural and engineering firm in Boston, reports a new home at 86 Griggs Road, Brookline 46, Mass. Norman Insley at 36 Old Middletown Road, Nanuet, N.Y. Leonard R. Janes gives his address as 2520 Noyes Street, Evanston, Ill. Jimmie is with Commonwealth Edison in Chicago. Roy C. Mitchell has moved from Terre Haute, Ind., to Chapel Hill in our old home state of North Carolina. Norton G. Raymond is on the engineering staff of the Ex-Cell-O Corporation of Highland Park, Mich., and has a new home at 11776 East Shore Drive, Whitmore Lake, Mich.

When, in the course of human events, Don Severance '38, our beloved secretary-treasurer of the Alumni Association, takes time from his busy days to write us a two-page letter of praise, that's news, and we publicly express most sincere thanks for his thoughtful kindness. The praise? For one of our members of the Class of 1921 most deserving of it, of course—Bill Sherry. Says Don: "At the M.I.T. Regional Conference on Science and Engineering in Tulsa on February 2, your classmate Bill Sherry was presented the following certificate by Ted Miller '22, President of the Alumni Association: 'The Alumni Association of the Massachusetts Institute of Technology honors William James Sherry, Loyal Alumnus of the Class of 1921, whose prodigious accomplishments since graduation denote him unquestionably as Mr. M.I.T. of Oklahoma.' This regional conference was a perfectly tremendous affair. Bill Sherry, more than any other person, was responsible for the magnitude and scope and its success, including his arranging to have Governor Gary proclaim the date as 'M.I.T. Day in Oklahoma.' In-

dicative of the conference was an editorial in the Tulsa *Daily World* three days later, part of which I quote: 'One of the most important and significant meetings in Tulsa history was held Saturday—the regional conference of the Massachusetts Institute of Technology which was attended by an estimated 1,200 M.I.T. Alumni, teachers, scientists, engineers, and students. The speakers were outstanding in their fields as they presented a comprehensive review of atomic and nuclear progress and forecast probable future developments. There was detailed information for both the scientists and the layman. More than ever are industry and the military placing increasing reliance on scientific and technological improvements. The conference constituted a strong reminder of the important factor that scientists, engineers, and other highly-trained specialists are in the nation's security. The quality of the addresses was unsurpassed. For Tulsa, the conference had a special meaning. Two of its citizens, William R. Holway '15, engineer, and William J. Sherry, oil producer, engineer, and president of the Sherry Petroleum Company, were honored with awards of outstanding achievement from the Massachusetts Institute of Technology.'

From the Junior League of the Class of 1921 comes the announcement of the marriage on February 13 of Sandra E. Hawes, daughter of Munnie and Alex Hawes of Sea Girt, N.J., to Lieutenant Howard F. Fredericks, Jr., son of Mr. and Mrs. Fredericks of Nutley, N.J. Sandy attended Florida Southern College and has appeared on numerous television programs. The young couple reside in Columbus, Ga., where Lieutenant Fredericks, a Lafayette graduate, is stationed at Ft. Benning. As we prepare these notes, Helen and Ray St. Laurent are planning a trip to Europe, including the Scandinavian countries, for some time around the date these words will be in your hands. Ray promises to be back in time to bring Helen to the Alumni Day party. Speaking on "Human Relations" before the Stamford-Greenwich, Conn., Manufacturers' Council, Saul Silverstein said it's not just "Chapter 17" in the book on industrial management, but the whole book itself. He urged management to put more emphasis on dealing with people. Robert J. Lawthers, once a reporter on *The Tech* and now director of the Benefits and Pensions Department of New England Life Insurance Company, Boston, was guest speaker at the February dinner meeting of the Eastern Maine Life Underwriters' Association in Bangor, Maine. Bob is an expert on tax law and has written many articles on taxes and estate planning.

David O. Woodbury, engineer, author, inventor, explorer, scientist, *raconteur extraordinaire*, and a faithful contributor to this column, makes his annual bow with a welcome letter, written from his home at 1101 Roble Lane, Santa Barbara, Calif. Says Dave: "It's the time of year when I have to give an accounting, so here goes. Projects of some importance this year are my new book on the satellites, to be called *Little New Moon*. It will be published in the fall about the time (we hope) that the first *Little Joe* will go skywards. Publisher is Harcourt, Brace, New York, who

brought out *Let Erma Do It* last October. This was about automation and had the blessing and a lot of help from my very dear friend, Dr. Gordon S. Brown, Head of our Electrical Engineering Department. Gordon liked the book well enough to present himself under my guidance on one of last summer's M.I.T. Science Reporter television shows at WGBH-TV, across from the Institute. I was playing reporter for some weeks while the regular crowd went on vacation. Yet they say I have six months' vacation a year! Research for the satellite job was heavily aided by M.I.T. I was fortunate in being invited to sit in on a two-week session on orbital vehicles, headed by Paul Sandorff of Technology's Aeronautical Engineering Department. It was all over my head, but then, so is the satellite. I have the toe of my shoe in the door to Hollywood, being in the midst of assisting a young screen writer to do a picture script of my book *The Colorado Conquest*. Published in 1942, it's the epic of Imperial Valley and the fight against the Colorado River, which flooded the valley periodically until it was finally tamed by Hoover Dam. There seem to be good prospects that the picture will sell. Says who? Family-wise, my wife and I still migrate twice a year; in June, to Ogunquit, Maine; in October, to Santa Barbara. Our friends are envious and our enemies, probably smug. It is not a vacation, either way. Books, articles, and movies in the winter. Research, wrangles with editors, television programs, and more articles in the summer.

"Erma got me into trouble. I shall be the principal speaker at Harvard in April at a banquet during the symposium on the Theory of Switching. Professor Howard Aiken, who asked me, said he did so because he needed someone to take the members' minds off the subject. Quite a number of speaking dates to do with satellites and atomic energy have to be filled this spring, mostly here and in Pasadena. More family news. My older son, Peter, will graduate as an ensign from Naval Cadet School at Newport, R.I., in March, and will join the Office of Naval Intelligence as a photographic specialist. His brother, Chris, who is rounding out his second year as an instructor in survival at Stead Air Force Base, Reno, Nev., is with us on a leave. He finds it hot after his normal climate of 20 below in the High Sierras. He hopes to wind up at M.I.T. in electronics after his Air Force service. My wife, India, has taken up weaving and spinning and is in process of making jackets for her husband and sons. She began the job with raw wool direct from a friend's sheep, has spun it and will weave it. I took pity on her for using an old-time spinning wheel and have just completed a motor-driven spinner. Am still conducting experiments in inventing and am about to seek a patent on a new kind of paint brush. Also working on a new idea in refrigeration. The *Reader's Digest* is bringing out a piece of mine on 'Absolute Zero,' and another about a gem-hunter's angel called Stan Perham, who runs a store deep in the Maine woods. My wife and I go gem-hounding whenever we can. Lately, have dug up diamonds in Arkansas, jade in California, turquoise and copper in Arizona, and columbium and

uranium ores in Maine. Value of the lot, about \$6. Hope you are the same." Don't be so modest, Dave; with the lift we get from your letters, we've passed the \$6 level and are way up with your satellites. Welcome to the family circle; come again soon and bring your interesting news!

Andrew I. McKee, retired rear admiral and vice-president in charge of engineering, research and design for Electric Boat Company, New London, Conn., was elected the first president of the newly-formed M.I.T. Club on the Thames at the organization dinner in Groton, Conn. Stewart P. Coleman, Director and Vice-president, Standard Oil Company of New Jersey, points out that world consumption of oil has doubled in the nine years from the end of World War II to 1955, in an article on the "Outlook for Foreign Oil Demand," in the New York *Investment Dealers' Digest*. He indicates that demand for oil abroad is synonymous with improved living conditions and predicts a bright future for the oil industry in the free world. A member of the Military Petroleum Advisory Board and the Foreign Petroleum Supply Committee, both consulting groups for the U.S. Government, he was recently elected a vice-chairman of the National Industrial Conference Board and chairman of its board of trustees. Copies of Rufe Shaw's letter to the editor of the *Wall Street Journal*, decrying unions for engineers, continue to be received.

Dr. Walter J. Hamburger spoke on "Research, The Modern Ingredient of Quality," at the January meeting of the Hudson-Mohawk Section, American Association of Textile Chemists and Colorists, in Albany, N.Y. Walter's firm, Fabric Research Laboratories of Dedham, Mass., was the subject of a feature article in the Boston *Traveler*, under an eight-column banner head. One of a series on "Who's Who on 128" (the laboratories are located at the junction of Route 1 and the famous circle Route 128), the article recounts the outstanding growth of the endeavor founded in 1942 by Walter and his two M.I.T. associates. The record of having expanded 15 times in 15 years matches the sprouting electronics business. Reminder to Course VI and VI-A readers and all former students of the late Professor Dugald C. Jackson to write a check payable to W. A. Hokanson, Bursar, and mail it to him at M.I.T., Cambridge 39, Mass., with a note stating it is to be applied to support the Dugald Caleb Jackson Professorship in Electrical Engineering. Also address your birthday good wishes to Mrs. D. C. Jackson, widow of the former head of the Electrical Engineering Department, on her 90th birthday, to 5 Mercer Circle, Cambridge 38, Mass.

Resuming the series of sketches of "Who's Who" at our 35th reunion last June, Dugald C. Jackson, Jr., is chief of Scientific Training, Ballistic Research Laboratories, Aberdeen Proving Ground, Md. Dug and Betty have three married sons, all engineers, and a married daughter, and seven grandchildren. Irving D. Jakobson, President and General Manager of Jakobson Shipyard, Inc., Oyster Bay, N.Y., is active as president of the American Boat and Yacht Council. The Jakobsons have a young son, Peder, at Friends

Academy. Melvin R. Jenney is a partner in the patent law firm of Kenway, Jenney, Witter and Hildreth of Boston. Chairman of the 1956 reunion, he is hereby commended once more for what continues to be referred to as one of the most enjoyable of our top-flight series of gatherings. Horseshoe champion, golfer, color photographer, he and Anne have two sons and a daughter. Lawrence W. Jordan '23 is with the Winchester Repeating Arms Company, New Haven, Conn.

Algot J. Johnson is traffic supervisor for the New England Telephone and Telegraph Company, Boston. Daughter Helen attended M.I.T., and Carla was a guest at Alumni Day. Joseph G. Kaufman formerly operated his own company, J. G. Kaufman Company, Boston electrical appliance firm. He and Anne have a son, David, who attended Brandeis and Columbia and is now in the Army. William F. Kennedy is with Bethlehem Steel Company, New York City, as a contracting engineer on fabricated structural steel. Bill and Elizabeth have a daughter, Elizabeth, at Dickinson College. Dr. Augustus B. Kinzel, referred to earlier in these notes, is also an Alumni term member of the M.I.T. Corporation. He and Marie have a son, five married daughters and nine grandchildren. Chesterton S. Knight is general manager and a partner of George Knight and Company, Brockton, Mass. The Knights have a married daughter and son, a daughter at Mt. Holyoke, and five grandchildren.

Last call: Come to Cambridge and join the Class on Monday, June 10 at Alumni Day!—CAROLE A. CLARKE, *Secretary*, Federal Telephone and Radio Company, 100 Kingsland Road, Clifton, N. J.

1922

All arrangements have been completed for the 35th Reunion at Pine Orchard, and the returns received by the Committee indicate that we will have a full house.

A release by the Sutherland-Abbot Advertising Agency, in which Ken Sutherland is a partner, tells us that Taft-Pierce Manufacturing Company (F. Steele Blackhall III, President) has recently put on the market a new model 824 Permanent Magnet Chuck. If there are any Chuck users in the Class, please be advised that the 824 features 100 per cent all-over holding power and a unique concept in faceplate construction. A special Alnico V chuck design has eliminated all dead spots and provides full edge-to-edge useable surface and, furthermore, the actual magnetic power has been increased 28 per cent over comparable units. There are many other features which cannot be enumerated here. If interested, write to Fred for full details.

Robert D. Stuart of Saylesville, R. I., has recently been elected president of the Blackstone Valley Gas and Electric Company after four years as manager of the Company's Woonsocket Division and as executive vice-president and a member of the board of directors for the last two years. Stuart, as the Company's chief executive officer, will be in direct charge of all operations in both the Pawtucket and Woonsocket Divisions. He has been with the Company ever since graduating from

the Institute in 1922. Another gold star for '22.

Edward Bigelow of Milton, Mass., was appointed early this year as a member of his town's Planning Board. He has been with Stone and Webster Engineering Corporation for many years and in the last few years has been assistant engineering manager. Warren Ferguson and George Schumaker recently met by chance in Chicago when both were there on business and had a chance to talk over old times. George is a consulting power engineer in Cleveland while Warren continues to run Anderson Products, Inc., and Kingston Electronic Corporation in Cambridge.

Appearing in the *American Engineer*, February 1957 issue, under the section entitled "Professional Postscripts" is an article by Ray C. Burrus, Washington, D.C., consulting engineer on the subject of "Foreign Industrial Development—Late 20th Century Model" in which he discusses some of the implications of the newly-established International Finance Corporation as an affiliate of the World Bank (International Bank for Reconstruction and Development).

We are sorry to learn of the death of Harold A. Stockbridge who died in his sleep on February 22, 1957, in Glendale, Calif.—C. YARDLEY CHITTICK, *Secretary*, 41 Tremont Street, Boston, Mass. WHITWORTH FERGUSON, *Assistant Secretary*, 333 Ellicott Street, Buffalo, N. Y.

1923

Penn Howland received a nice letter from Robert J. Hull, XV. Bob reported that as of January 1, 1957, he moved to Canada as president of the Cities Service Oil Company, Ltd., the Cities Service marketing subsidiary in the Dominion. It is presently engaged in a \$30,000,000 marketing program involving the building of a new refinery and the development of new marketing facilities. Good luck, Bob! We'll tell our Canadian representatives to buy Cities Service gas.

Ray Bond had a letter from Jose C. Bertino, XIII, who is now a naval engineer in Buenos Aires. Enclosed was a copy of a paper Jose had written on higher education for one of the scientific periodicals in Argentina. It was written in Spanish so Ray sent it to your scribe for translation. It was entitled, "Hacia la Universidad Autentica." The last paragraph reads, "For this it will be necessary to create and maintain a conscientiousness, an unrest, and a sincere desire to make one realize the value of higher education in true universities, with the firm conviction that these institutions will tend toward the betterment of all other similar ones, thus elevating their standards of education and organization, stimulating with new blood the vigor which is always latent in the forces of the spirit and in the desire for knowledge." Nice work, Jose, and thanks for the copy of your paper. Write again.

Edwin H. Schmitz, XV, has been named vice-president for sales of Wrap-King Corporation of Holyoke, a subsidiary of Crompton and Knowles Corporation of Worcester. For the past year and a half Ed has been in the management consulting field, heading Edwin H. Schmitz and

Son of Providence. Previously, he was general sales manager for Standard Knapp Division of Emhart Manufacturing Company of Portland, Maine, and treasurer and a director of Union Fork and Hoe Company of Columbus, Ohio. While with Standard Knapp, he was president of the Packaging Machinery Manufacturers Institute. Ed is married and has two married children. Good luck, Ed, on your new undertakings!

James C. Walton, X, President of the Chase-Walton Elastomers, Inc., Hudson, Mass., was honored recently by the Archdiocesan Youth Congress when he was presented the Pro Deo et Juvenile Medal by the Congress. This medal is a national award to give recognition to outstanding Catholic lay adults who have contributed their talent and time to God and youth. The award honors Mr. Walton on outstanding contribution to Boy Scouting over a period of 25 years. For the past seven years he has been Lay Leader of the Scouting phase of Catholic Youth Organization work for the archdiocese. Mr. and Mrs. Walton live in Wellesley Hills and have six children. Congratulations on receiving this award!

A recent clipping announced the election of William L. Stewart, Jr., XV, of Pasadena, Calif., to life membership on the Corporation of M.I.T. Bill is executive vice-president of the Union Oil Corporation and has been with the Company since he graduated from M.I.T. Nice going, Bill!

Services were held in Peterboro, N.H., on February 17 for John E. Bastille, VIII, President of the Home Insulation Company of New Hampshire and former teacher at Amherst College and Worcester Polytechnic Institute. He collapsed the previous Friday when visiting Manchester and died at the Sacred Heart Hospital there. He leaves his wife, Dorothy (Wood), two sons, three brothers, and a sister. Our condolences go to the family in their bereavement. We also received notice from the Alumni Register of the passing of John B. Carpenter, Jr., X, April 25, 1956, which was not previously reported in these notes.

At the time this is written, Dr. Eger V. Murphree, V, President of Esso Research and Engineering Company and special assistant to the Secretary of Defense, was slated to address the M.I.T. Club of New York on March 7 on "Guided Missiles." Undoubtedly his remarks were appreciated by the audience and reported in part in the press. These notes have been prepared early this month inasmuch as your scribe is forced (?) to take a trip to New Orleans and will be away until the end of the month. — HOWARD F. RUSSELL, Secretary, Improved Risk Mutuals, 15 N. Broadway, White Plains, N.Y. WENTWORTH T. HOWLAND, Assistant Secretary, 1771 Washington Street, Auburndale 66, Mass.

1924

The two big, Latin-American week ends have come and gone. Lobbie attended both, of course, and reported on the welfare of our classmates. In Mexico, Nish Cornish was head man, and he put on the usual excellent show. The high spot

of the Fiesta, the Noches Americanos, was held this year in Nish's garden — and a more beautiful spot is hard to imagine. Your secretary remembers it well, and with longing: The smell of orange blossoms, the geraniums growing high into the trees, flowers blooming everywhere inside the high walls at a time when the north was still in the grip of winter. There weren't enough '24 men on deck this time to hold a reunion, but Jack Nevin was there, of course, a member of the committee, and Bill MacCallum had again figured his schedule just right.

Bill couldn't quite work in the Havana week end though. Mike Amezaga was one of the moving spirits there, and Tony Rosado was supposed to be, but an ill-timed bug had put him out of circulation temporarily. This had a somewhat different format, with yacht clubs and beach parties instead of pyramids and bullfights, but it was a very successful week end, according to Lobbie. George DiSomma, recuperating from a heart attack in Key West, "only a half hour flying time from Havana," had hoped to make it, but the medicos said "No." George, by the way, sent a clipping from the Miami *Herald*. In a column, "Is Florida a Good Risk?" it speaks of the Ferres: "Puerto Rico's wealthiest family invested heavily, today own substantial banking interests and control of Maule Industries, the South's biggest concrete product firm."

Another Florida visitor was Bill Rosenwald, but he was there on a somewhat different mission. The big wheels in the United Jewish Appeal met in Palm Beach in late February, and Bill, last year's *big* wheel, was there for the high strategy session. Never did learn whether he made his \$100,000,000 last year, but knowing Bill it seems like a logical assumption. Also in Miami, but on pleasure bent, were the Henningers of Reading, Pa. They were at Miami Beach, the Fontainebleau, of course, for well over a month. "The splendor that is Florida — it's the mostest." A last line indicates they'll be able to tear themselves away in time to join us at Alumni Day.

Well, so much for the sunny South. Now let's leap back to rock-bound New England. Walt Kennett retired from the Army some time ago as a colonel. He had 30 years service. He bought into an automobile agency in Bath, Maine, and now has received an appointment from Governor Muskie as Maine Civil Defense Director. Walt's son, Walt, Jr., is a West Point senior and is engaged to the daughter of a former Brunswick Naval Air Station commander. Looks like the Kennetts were in the military to stay.

Another colonel, Bill Sturdy, reports in from Whippany, N.J. Bill is Signal Corps liaison officer with the Bell Laboratories there. However, this doesn't mean that he's given up his wandering habits. Last October he returned to his old haunts, Germany, for a month of deer hunting. "Bagged five roe deer, plus some small game." Then, as he was about to return, he got orders to attend maneuvers in Germany for two weeks. Got him home just in time for Thanksgiving. Bill's son, Bob (M.I.T.'52), became a parent for the third time in January while Bill was en route to some Arizona field tests of a new

communications concept developed by Bell Laboratories. "Highly successful." You'll have to ask him for more details, if you're interested. The Colonel is evidently doing other things than liaising and hunting. He has three patent applications on file at the moment.

We told you about Franklin O. Billings and his post-retirement life as a student at the University of Washington. A recent note says he hopes to complete his thesis just about now, will then get his B.A. degree. He majored in gerontology. "Would be glad to communicate with classmates or other Alumni who are giving thought and attention to the problems of aging." Who of us isn't! His address is not that in our directory. It's 4306 12th Avenue, N.E., Seattle 5, Wash.

It's Governor Cardinal now. In March the National Vitamin Foundation, Inc., elected Paul to its Board of Governors. Paul made another of his extended trips in March, this time covered the West Coast. A letter from Bill Robinson indicates there may be certain hazards in these executive development programs. After 13 weeks at General Electric's course in Crotonville, N.Y., last fall, Bill says, "I am back at work now. The term is used loosely. In fact, after Crotonville, I am a little allergic to work. Thirteen weeks is an awful long time."

And now for some real surprise news. Our ex-president, George Parker, a partner in Bigelow, Kent, Willard and Company (management consultants) in Boston, seemed to have returned home for good. Now comes news from London. "In mid-November I resigned my partnership and accepted the task of coming here to manage the affairs of Mead, Carney and Company, Ltd., a large management consulting firm with sizable counterparts both in the United States and the Continent. Just last week I was able to lease a home for my family so they now plan to fly here on April 5 to join me." Must be a good-sized house to take care of all those Parkers. Before they left, Madeline unearthed our 1924 banner which had been stored in their attic, and it is now here in the Alumni office.

Don't forget, Alumni Day is on June 10. Hope to see many of you there. Extra added attraction in the evening; Arthur Fiedler and the Boston Pops Orchestra in Kresge Auditorium. — HENRY B. KANE, Secretary, Room 1-272, M.I.T., Cambridge 39, Mass.

1925

A fine letter from Robert C. Read, VII, reassures me that some members of the Class do read these notes, and he in particular responded to my plea for material. I quote his letter in full: "In your February news notes you asked for reports of the doings of the Class members. Thirty-two years having gone by, I suppose one from me is about due! When the work of the government sponsored Read-York Corporation (aircraft research) was completed in 1946, I returned to my prewar interests; director and chief executive officer of Skiles Oil Corporation, producing oil here and abroad; president of The Gordon Company, Inc., industrial research and development; trustee of the

Tantram Trust, and the Rockport Industries Fund, handling venture investments here and abroad for myself and a group of my associates.

"Have recently returned from Lima, Peru, where I concluded negotiations with the Peruvian government for some 500,000 acres of oil leases in the upper Amazon 'Oriente' of Eastern Peru and for the establishment of a Skiles' branch office in Lima to handle the development of this property. In 'The How and the Why of Drilling for Oil,' a brochure which was published last month, I wrote of the hazards of prospecting for oil and the use of 'spread' drilling to minimize the risks when highly taxed income dollars are thus employed. This is the most recent of some 200 articles and books I have written, mostly on oil production and development research. Since the 1940's my home has been in Wilton, Conn. I might add that keeping in personal touch with my offices in this country, Europe, and South America kept me away from Connecticut 349 days in 1956; a figure I hope to cut in half in 1957!" May this prove a good example for many of the rest of the Class!

The March notes mentioned Ben Groenewold's activities in connection with the regional meeting at Tulsa, Okla.; and I am sure you will, by this time, have seen a complete report of that marvelous meeting. Ed Kussmaul's panel discussion, which was mentioned in the April notes, went off quite successfully. Ed has promised to give me a more complete story on it, because I feel many of you should be vitally interested in the problem of guiding more young people into the field of science and engineering. — F. L. FOSTER, *Secretary*, Room 5-105, M.I.T., Cambridge, Mass.

1926

The return post cards are still coming in — six more and a letter since last month. Unfortunately, an obituary came in, too, the other day. Reading my morning commuter's newspaper I was attracted to a picture that turned out to be Steve Spencer's. The story said he had succumbed after an operation. Steve had never attended a reunion until last June when he showed up at Coonamessett with his daughter, Margaret, who turned out to be a crack golfer. Steve was building commissioner for the City of Cambridge. We are sorry to start the notes off with this item but are following our policy of getting the bad news off first.

Here's another picture in the news, good news this time. Alden Butler's picture appears in the Springfield, Mass., *Republican*, and the story is that he has been transferred and promoted to manager of the Columbus, Miss., plant of American Bosch Company. Congratulations, Alden. Guess I've already reported that Jim Killian was made deputy chairman of the Federal Reserve Bank of Boston, but the clipping service has sent along another news item with picture. Barney Billings hit the news, too (also with photo), when he recently joined the organization of Merrimac Paper Company. Welcome back to New England, Barney!

Let's get on with the reply cards, however, because I may want to send a card

out again — it seems to give us a constant backlog. Marv Pickett sent a letter and we have made excerpts from it: "For about five years I was an administrative assistant at M.I.T. with Professor Hansen on a group of civil engineering research projects. A little over a year ago I took over an accelerated program of construction for recreation areas in the Massachusetts State parks and forests. The work is interesting and has possibilities. My immediate superior is Arnold E. Howard, M.I.T.'22, and our new department head is Francis W. Sargent, M.I.T.'39. I still haven't proven smart enough to catch a wife, but I still have 50 years to go. Last fall I met Don Sampson, engineer with Metropolitan District Commission, and had lunch with Bill Hoar, division engineer with Southern Railway in Birmingham. Bill is now a grandfather. I also spent a pleasant evening with 'Pop' Constantine in Longmeadow with a large group celebrating his oldest son's marriage. Those who know 'Pop' will realize it was a celebration."

Win Russell also sent a letter from Formosa in which he enclosed a picture of a flying helicopter designed and built by our classmate, General C. J. Chu, who had asked that the photo be sent to us. Win has been in Formosa for three years now and he meets lots of M.I.T. men there, but General Chu and H. Y. Lo are the only '26 men among them. Through these notes I would like to have Win ask H. Y. Lo the next time he sees him if Lo is not the fellow who had a four cylinder Dodge that he allowed practically anyone who lived in the dorms to borrow when he wasn't using it. If he's the guy, please extend my 30 years' belated thanks. We still haven't started on the reply cards, so let's go. Here's one from Hartford, Conn.: "I am at present comptroller of the Aetna Life and affiliated companies. Odd job for an electrical engineer! Mostly family news to report. We have two sons; the 23-year-old is in the service at Fort Hood, Texas, by request. The 18-year-old is in England for a year on an English Speaking Union Scholarship, having graduated from Mount Hermon in '56 and entering Harvard in '57. Dale, the service man, graduated from Oberlin College last June. R. W. Conley."

And here's one from a classmate in Boulder, Colo. We have not heard from him in a long time. "There is little to report — I continue as executive officer at N.B.S. Boulder Labs, Boulder, Colo., with responsibility for all housekeeping functions such as personnel, plant, supply, and fiscal operations. My son enters the University of Colorado Law School next month after his required years in the Army in Korea. My daughter, a senior in high school, will probably enter the University of Colorado next fall, provided Ezekial, the bantam rooster, doesn't drive her away before then. I've a few acres on the edge of town owned and operated for the convenience of an assortment of beasties that serve no useful purpose except as pets. 'Ala' Welch." (For those of you who don't recall the nickname, that was S. W. J. Welch). And here is still another interesting card from a seldom-heard-from classmate in Philadelphia: "You might like to know of the great thrill

we had this past summer when both of our children were chosen to represent the United States in Europe as ambassadors of good will. Alexander, an Eagle Scout, went with the Boy Scouts on the 'Explorer Airlift to Europe,' visiting scouting units in Germany and England. Muriel, having graduated from Cornell in June, received a Rotary International Fellowship for a year of study at Zurich University, Zurich, Switzerland. Louis R. Taylor '26."

Let's now hop to an often-heard-from classmate, our Class treasurer and Class agent. "Pop and Mom are still struggling. I tried to settle a TV reception problem for Darmstadt in Norwich, Conn., who wants to get Channel 2 (the educational station — Louis should have taken XV instead of IX-B) in Boston. The best advice of our electronic boys was to move here. Tech must be easier now than when we were there as my older hopeful, Billy, expects to graduate in June (I recall I was uncertain), and has time for varsity hockey, chairman of Judicial Committee of the Institute Committee, coaching the sophomore football team, house treasurer and cadet colonel. The younger boy graduates from high school in June, 1958, and thinks his meat is Course I. (I haven't discussed this with Bud.) The dog, who is nine years old and weighs 28 rather than 280 pounds, is the only relaxed member of the family at this juncture. Pink Salmon."

Here's a card from another classmate that we see frequently in Boston but from whom you seldom hear. "Am in the midst of building a new plant on Route 128 (near Route No. 1 junction in Dedham). We have been in present location, but not same buildings, since 1859. Will be starting our second 100 years with fresh outlook. Don Cunningham, Hersey Manufacturing Company, S. Boston, Mass."

Say, I like this card business. It isn't yet 9:00 A.M. on a blustery mid-March morning here at Pigeon Cove, and it looks as though the Class notes should be finished with my contribution being only two longhand pages. Now I can get out the Leica and finish the roll of Kodachrome I started last night with my new electronic flash unit. The next issue is June, so we will be seeing many of you at Alumni Day! Till then, cherrio! — GEORGE WARREN SMITH, *Secretary*, E. I. du Pont de Nemours and Company, 140 Federal Street, Boston, Mass.

1927

Plans are really well under way now for the 30th Reunion of the Class of '27. There is every indication that we will have a good turnout for the event. Those of you who have attended previous reunions know what pleasurable times we have had. For those of you who have still not attended a reunion or who have not attended any in a long time, may I urge you to not miss this one. The place: Oyster Harbors on Cape Cod, Osterville, Mass. The time: June 7-9. For any additional information write Mr. Bob Bonnar, Chairman Thirtieth Reunion, c/o General Dyestuff Company, 435 Hudson Street, New York 14, N.Y.

Middleton L. Perry was recently married to Mrs. Edna Benton in Kansas City. — J. S. HARRIS, *Secretary*, Shell Oil Company, 50 West 50th Street, New York, N.Y.

1928

Recently we have had occasion to talk with Ben Draper (officially, John H. Draper, Jr.). Ben, now president of Draper Brothers Company, Canton, Mass., has been in the textile manufacturing business since graduation from course XV-2. A principal product of his company is the woolen felts used everywhere on paper-making machines. Ben says these felts must be built individually for every machine, and that the utmost care has to be taken in their manufacture to assure proper performance and maximum service life. In addition to the purely business aspects of his company, Ben keeps close watch on technical developments to make sure that benefit is derived from every advance in science that might apply. He is a businessman, but is still using his M.I.T. training effectively!

The Drapers have their home in Canton and are much interested in local affairs. Ben is a member of the town Finance Committee, a trustee of the Canton Institute for Savings, and a director of the Norfolk County Trust Company. Besides these activities Ben is president of the Papermakers Felt Association. Mrs. Draper (Catharine) especially enjoys an occasional get-together with her alumnae friends of Wheaton College. There are five young Drapers. The oldest, Jane, is married and living in Japan. Her husband is on a government assignment in Tokyo. It is expected that they will be home soon only to take off again on a similar assignment in Honolulu. Son Benjamin is also married. He is with the U. S. Army at language school in preparation for intelligence work. The second daughter, Ellen, is in her sophomore year at Skidmore College, Saratoga Springs, N.Y., where she majors in psychology. Young John, who will graduate from Phillips Andover Academy this year, hopes to enter Trinity College at Hartford, Conn. His interests are in chemistry and the sciences. Paul, who is the youngest, is 13 and in grade school. — GEORGE I. CHATFIELD, *Secretary*, 49 Eton Road, Larchmont, N.Y. WALTER J. SMITH, *Assistant Secretary*, 15 Acorn Park, Cambridge, Mass.

1930

Several of our classmates have been in the news lately, and it is through this medium that I report the following: From the *Worcester Gazette* comes word that Dick Ellis has been named "Man of the Year" by Lions Club members. This award came as a complete surprise to Dick on January 21, 1957. He had been wondering all that evening why he was sitting at the head table during this dinner. He was cited for outstanding work in this community. He is chairman of the Athol-Royalston Regional School Committee. After first trying to lay plans for a new Athol High School that was rejected by townspeople, he helped revive

the idea of a regional school and was instrumental in bringing the idea into a reality. It took him 11 town meetings before he succeeded in getting all the necessary plans for the new regional school accepted. Dick was elected to the School Committee in 1953.

On January 19, 1957, the *New York World-Telegram and Sun* carried an item about Rear Admiral Delmar S. Fahrney (retired). It stated that he was recently appointed chairman of the Board of the National Investigations Committee on Aerial Phenomena. This committee was founded by citizens interested in interstellar communication who wanted "to set up a national organization to screen flying saucer reports and separate authentic sightings from hoaxes." The article further stated that Admiral Fahrney, an expert on guided missiles, lives at Chadds Ford, Pa. He recently was appointed secretary of the Committee on Sciences and Arts of the Franklin Institute. He devotes one day a week to that job. The rest of his time is spent at an office at the Philadelphia Naval Base writing his history of guided missiles. "Because of many advances we now have at our command," says the Admiral, "we have tools to examine reports of so-called unidentified flying objects. These advances include radar, the cooperation of airline and private pilots, and a network of 'competent observers' in flying saucer clubs." He goes on to say, "If we get enough data, we will eventually determine, we hope, where these objects come from and why."

On December 16, 1956, the *Boston Sunday Herald* and, on December 20, 1956, the *Brookline Citizen* carried an article about Sid Kaye. We are advised that he was elected first vice-president of Parker Hill Medical Center for the ensuing year. Sid was for many years a bacteriologist on the staff of the Boston Health Department, and regulations on restaurant sanitation he adopted are used by health departments in many cities. Sid is director of Emergency Feeding for the Massachusetts Civil Defense Organization. He has been a member of the American Public Health Association for 28 years, is at present a trustee of the Beth Israel and Jewish Memorial Hospitals, and a member of the Hospital Council of New England.

From the *Salem News*, dated December 12, 1956, we received word about George Lawson. He was appointed operations manager in charge of photoflash and incandescent lamp operations for Sylvania Electric Products, Inc. In his new post he will be responsible for manufacturing operations at Sylvania's incandescent lamp plants in this city and St. Marys, Pa., and the photoflash bulb plants in Montoursville, Pa., and Winchester, Ky. He will make his headquarters in Montoursville. George has been with Sylvania for nearly 24 years. He joined the company as an engineer in radio tube operations at the Boston Street, Salem, Mass., plant in 1933, and held various production and engineering posts at the two Sylvania plants in Salem. The *New York News* of January 24, 1957, reported that Howard Robinson has been named chairman of the Physics Department, Adelphi College. He had been pre-

viously attached to the U.S. Embassy in Paris.

Joe Harrington, our Class treasurer, sent us some news about Ed Hudson. Ed is with the Securities Exchange Commission. He has been associated with this Commission since 1938, except for 53 months' duty with the Navy during World War II. He is in the S.E.C. division which deals with public utility holdings, and keeps an eagle eye on the financial affairs of these organizations. He is also president of Investment Analysts Club in Washington, a club which is active in financial affairs of the investment community. Ed is living in suburban Washington, actually in Virginia, with his wife, Margaret, and daughter, Nancy, who soon will be graduating from high school. He is a hi-fi fan, specializing in recordings of operas, and can play, from his library, almost any opera you care to name. He is in excellent health, and has the distinction of a full crop of brown hair, only slightly graying at the temples. Ed wishes to be remembered to his classmates in spite of his inability to get to reunions which fall regularly at his busiest season of the year.

Armstrong Cork Company's Personnel Administration Department sent us a letter dated December 19, 1956, concerning Bob Crowell. They advise that Bob has been promoted to the position of manager, quality control, of the Company's Building Materials Operations, effective December 1, 1956. Bob joined the company in 1942 and later served as senior project engineer and organization engineer in the Lancaster engineering department. He has served as quality control engineer in the company's quality control department since 1953.

Parker Starratt has sent me some information concerning our 30th reunion. The dates have been set for June 10, 11, and 12, 1960, and the place has been selected (with confirmation from the manager) to be the Oyster Harbors Club in Osterville on Cape Cod. From time to time we will be reminding you of these dates, hoping that you will be planning to join us at this important reunion.

At the Midwinter Meeting of the Alumni Association, held at Morss Hall, Walker Memorial, on January 30, 1957, our Class was well represented by Joe Anastasi, Sid Kaye, Allan Latham, Hi-jo Marean, Stan Russell, Parker Starratt, and George Wadsworth. It is interesting to note that all secretaries the Class has had were present at this dinner meeting. — GEORGE P. WADSWORTH, *Secretary*, Room 2-287, Department of Mathematics, M.I.T., Cambridge 39, Mass. LOUISE HALL, *Assistant Secretary*, Box 6636, College Station, Durham, N.C. RALPH W. PETERS, *Assistant Secretary*, 249 Hollywood Avenue, Rochester 18, N.Y.

1932

Plans for the Reunion will have been completely finalized by the time this is published. As of now, the Reunion Committee has arrangements in order for a perfect week end. Rolf Eliassen writes that not enough questionnaires have been received, and to those of you reading these notes, if you haven't sent in

your questionnaire and are not going to the Reunion, please send in the data anyway for it would be of great interest to us. And for any of you who at this late date can still make plans to come to the Reunion, do so. We're going to have a grand time.

Rolf has heard again from Jim Harper, who hopes to be at the Reunion with his new wife. "Both my wife and I enjoy Alaska greatly and are presently having a lot of fun skiing on week ends. The temperature here now is an even zero, and it rarely gets colder than 20 below in the Anchorage area. The wonderful part about our climate here is the almost complete absence of wind; and even though I am no hunter I had no trouble bagging a 300 pound caribou up in the mountains last November. (I leave the bear hunting to others, however!) The short spring, summer, and fall (May-September) is really the pleasant time, and we get in plenty of fishing during the salmon runs."

As for Rolf himself, he has been appointed to an 11-member national advisory committee of the Public Health Service to assist in a new public health training program voted by Congress at the last session. This is a three-year training program to enable physicians, nurses, engineers, and other professional health personnel to secure graduate or specialized training in public health. To date, over 300 traineeships, amounting to nearly \$1,000,000, have been awarded.

Dr. George Valley, who has been on leave of absence from the Department of Physics at M.I.T. since October 1951 at the Lincoln Laboratory as associate director, is returning to the campus with promotion to the rank of full professor of physics. While with the Lincoln Laboratory he spent his time on the development of the Semi-Automatic Ground Environment System (SAGE) for the defense of the country against air attack. Valley has also contributed largely to other applications of modern science, particularly in the area of national defense.

Ed Poor has just had another son. Lawrence Ludwig is chief contract engineer for the Iranian Oil Refining Company over in Tehran, Iran. He arrived there with his wife and daughter in February for a two-year assignment "working with the Consortium, the organization which is operating the oil industry in Iran for the nationalized company. Too early to tell how we really are going to like it, but it promises to be a lot of fun, even if there are headaches such as housing to be overcome. The two boys stayed at home in the States—one is a senior at Yale and the other a freshman at Rhode Island School of Design."

Joe Tomlinson of our Class has made quite a name for himself since graduating. He is currently in the news challenging Loew's, Inc., management in a proxy fight. The news item says, "Tomlinson, holder of 250,000 shares of Loew's, has amassed a fortune in road and airfield building in Canada since graduation from M.I.T. in 1932. He is now a resident of Ft. Lauderdale, Fla., where he is a director and member of the executive committee of the Utility Operating Company which builds and operates water

sewage plants for Florida municipalities. In British Columbia, his construction firm is building highways through a subsidiary, W. C. Arnett and Company. His Consolidated Truck Lines operate throughout Canada. He is president of the construction firm of Tomlinson Brothers, Ltd., which he founded in 1945 with his brother." — ROBERT B. SEMPLE, *Secretary*, Box 111, Wyandotte, Mich. *Assistant Secretaries*: WILLIAM H. BARKER, 45 Meredith Drive, Cranston, R.I. ROLF ELIASSEN, Room 1-138, M.I.T., Cambridge 39, Mass.

1933

Top billing this month goes to Ivan Getting for his appearance on the \$64,000 question TV show in mid-March when he served as scientific adviser to the ten-year-old mathematical wizard. As it turned out, the young man gave a good account of himself without help. Ivan, as you all know, is vice-president of the Raytheon Company, and in his spare time has served in many advisory capacities for the Defense Department. Also in the news is Donald G. Fink, Director of Research for Philco, who has been named editor of the Institute of Radio Engineers. We have received word that Russell S. Murphy, management consultant specializing in industrial administration, conducted a clinic for the Central Connecticut Tool and Die Association. Russ has served as consulting engineer to several trade associations in the past.

We regret very much to report the death of Samuel P. Baum last October, after a long illness. We just had word indirectly that Mrs. Baum is living in Cambridge. One of our classmates, unnamed at the moment, wrote recently urging that something should be done about stimulating giving toward the 25-year gift. To use his words, "The softening-up process should start soon, possibly with mention in the Review that the gang should start thinking about it. It is possible that some members of the Class might find 1957 a favorable tax year in which to make the gift. I happen to feel a strong moral obligation to the Institute to partially repay the benefits that pre-1933 benevolences to Tech provided for me." To these sentiments, your Class officers subscribe with enthusiasm. Lest any member of the Class feel that the officers are not thinking along these lines, let it be said that the entire Class will be hearing soon about plans for both the Reunion in 1958 and for seeking a fund for the 25-year gift. — GEORGE HENNING, *Secretary*, 330 Belmont Avenue, Brooklyn 7, N.Y. R. M. KIMBALL, *Assistant Secretary*, Room 3-234, M.I.T., Cambridge, Mass.

1934

Hank Backenstoss has been involved with others in the teaching of an American Institute of Electrical Engineers Boston section sponsored course bearing the title "Engineering Economics."

John Hitchcock has forwarded the following letter from Bill Ball whose thoughtfulness and appreciation is most welcome: "My skill on this typewriter is

comparable with a freshman's grasp of 5.01 or 8.01. (If 27 years has dulled your remembrance of those two courses, you deserve to look them up in the catalog.) Despite my digital ineptness (that means typing with two or less fingers), I thought you might welcome a little news which could be relayed to Walter McKay at the Institute. Walter is to be congratulated for never failing to have 1934 represented in the Review. I know because I had to write the Class notes for the three years prior to moving to New York (1934-1937). We all enjoy reading the notes, but, despite pleas and threats, all too few of us will sit down for even 15 minutes to provide the wherewithal for the writing of them.

"Here in New York, Art Esslinger and I get together for lunch occasionally. Art is a big advertising exec for McCann-Erickson, specializing in food and glass. Our doughty hockey goatee, Frank Miliken, dodges price changes in the copper industry much more than he does hockey pucks these days. As vice-president of Kennecott, he's a busy boy, but still finds time to attend M.I.T. functions around New York. Brad Hooper and his family join mine at least once each year for get-togethers with a group of other Belmont, Mass., school boys, circa 1916-1926, and their families. Brad is nearing the top in research administration for Babcock and Wilcox.

"Late last year I was appointed associate director of Public Relations for Ethyl Corporation, my loyal employer these past 20 years. While it seems a far cry from calculus and molecules, the work does require a broad technical background because most of our work is technical and devoted almost exclusively to serving our oil company customers in any way we can. The work is increasingly administrative and supervisory, but there are many creative aspects in originating and executing the many customer-service programs of the company. In closing, please accept my congratulations for your efforts in behalf of the Compton Fund and give my regards to the Boston group." — WALTER MCKAY, *Secretary*, Room 33-211, M.I.T., Cambridge, Mass.

1937

It's been a great pleasure to handle the correspondence (and, of course, the checks) in connection with our Class Dues Drive. Many fellows not heard from in years have at least sent in their names and addresses! Phil Dreissigacker, one of the more regular writers, says he is "assistant-chief engineer of the Farrel Birmingham Company in Ansonia, Conn. — same I joined on leaving M.I.T. Looking forward to June get-together." Phil sent us a clipping from the Milford, Conn., *Citizen* reporting the promotion of Wayne Pierce to vice-president for engineering and manufacturing by Norden-Ketay Corporation. Wayne started with the company in 1951 when it was called "Norden Instruments, Inc." Aircraft instruments and systems are the products designed and manufactured in Milford.

Sad news comes from Rochester, N.Y. Paul W. Stevens died of an apparent heart attack on March 6. Our sympathies

go out to Mrs. Stevens and the children.

Ralph Chapin writes from Batavia, N.Y., that he is looking forward to our 20th, and that "I still have fond memories of the good time had by all five years ago. Time flies! We had the pleasure of an afternoon with Goodwin DeRaimes who was doing some work down in Rochester. As you know, he works for the A. T. Kearney Company, management consultants, in Chicago. Other than that, I have not seen any of the classmates, and can only blame myself for I seem to be so busy here locally that I do not even get down to Rochester to the Club meetings there. I was recently elected a director of the local Chamber of Commerce, which I consider a feather in my hat for, more often than not, I find myself taking positions of being 'loyal opposition' on many issues."

Your scribe was lucky to have an open schedule on March 6 so he could fly up to Cambridge for the Reunion Committee meeting. Left New York at 4:15 P.M. after a conference, and just made it to the Faculty Club in time for one "Old Fashioned," thanks to Joe Heal, and a very fine dinner — Dutch. These fellows acting on the committee certainly deserve a pile of credit for all their work and personal sacrifices. Eleven of the faithful were there, and the business went like clockwork, showing the careful preparation since the last meeting and the fine cooperation of all present in shouldering the various jobs to be done.

Here is a list of the committees and the assignments: Questionnaire and Statistics, Len Seder; Regional Motivation (high-sounding talk for "get them out of the easy chair and get them up to the reunion"), me; Transportation, Curt Powell; Hospitality and Registration, Tom Kinraid and Bob Thorson (hospitality will begin with a good roof!); Class Meeting, Joe Heal; Cocktail Party, John Nugent (everybody volunteered for this one); Dinner-Dance, Bob Thorson and Tom Kinraid; Recreation, Les Dantona and Harry Corman; Banquet, Phil Peters and Win Johns; Class Day, Ralph Webster; Class Gift, Joe Heal. Various ideas were discussed, and many good new ones launched — looks to me as though the Reunion will be a real hummer. We are all looking forward to the big event with great excitement — everyone is bound to have a good time.

We recalled the wonderful time we all had at the banquet at the 15th. Everyone will be waiting for the results of the questionnaire; who will win the races for the most weight, most children, most of this, most of that, and, of course, everyone wonders who will inherit the "rug" the fellows so kindly gave me at Weekepaug!

The Belmont, as you probably have seen from the pictures, is a lovely hotel with everything we could want for a week end; swimming, golf, tennis, and indoor sports! Work up some interest among your friends. Perhaps all they — and you — need is the knowledge that some of their friends will be there. Look over the list again; telephone that school-time buddy now and make the arrangements for one of the grandest get-togethers you will ever have. The

20th comes once in a lifetime! — WINTHROP A. JOHNS, *Secretary*, 766 Hyslip Avenue, Westfield, N.J.

1940

Congratulations are in order for Ed Chin-Park who was recently wed in Boston to the former Miss Iris Lane Warren. We are indebted to Grace Hagenbuch for a clipping advising that Joe Havens has resigned as assistant professor at Wilmington College in Ohio to assume an appointment as college counselor at Carleton College in Northfield, Minn.

Grace also penned the note (unknown to Bill), "Joe's wife, Terry, is doing an equally fascinating job in teaching religion. Bill is doing a small bit of teaching, too. On 'Operations Research' for the Air Force Reserve in Dayton. He also is the chairman of the Greene County Red Cross and vice-president of Rotary. (Has done an especially fine job in the Red Cross — many, many hours.) At this time we are planning to go to Rotary Convention in Lucerne in May."

Lawrence Kelbley has been appointed director of manufacturing for Datamatic Corporation of Newton, Mass. Previously, he was plant manager for Calidyne Company. Louis Michelson recently gave a talk before the American Institute of Electrical Engineers in Lynn, Mass., on "The Challenge of The Earth Satellite in the Geophysical Year." Vitramon of Long Hill, Conn., has been accorded the Job Makers award by the Manufacturers Association in Bridgeport. The name of Vitramon is practically synonymous with Bart Weller who founded the company eight years ago. The principal product of Vitramon is a vitreous enamel.

Claude Shannon has been appointed professor of communication sciences in the Department of Electrical Engineering, and professor of mathematics at the Institute. For further details as to Claude's appointment, see the Trend of Affairs in the March issue.

An interesting article on Divo Tonti appeared in the Bergen *Evening Record*, and we are quoting liberally from this article: "At 38, D. Louis Tonti of Paramus seems to have found the job he was made for. He is the executive director of the Garden State Parkway, a corporation with holdings worth \$365 million. This makes him the youngest superhighway manager in the United States, a man who has in two years won a coast-to-coast reputation for cost-cutting efficiency. Recent court decisions would permit him to keep his Parkway post for life.

Yet, Tonti will chuck up his directorship within one or two years and go back into private industry. Is this the act of a man fed up with government work? Definitely not, says Tonti. If anything, it is the logical step of a man who has a definite philosophy about public work. And it is also in line with a piece of advice which he gives to anyone who has something to offer.

That advice, bluntly spoken, is 'Get the guts to get into government.' This is more than just a new twist on an old platitude left over from a civics class. Tonti believes that in government there are big projects which need doing. The man who does

them well is going to be noticed. Furthermore, government gives responsibility to younger men sooner than private industry seems to do.

"Tonti, the kind of fellow who can fall in love with a job, has a table-thumping intensity when he talks about almost anything connected with his work. He was particularly earnest as he puffed a cigarette and talked about public work. 'It's easy to shoot the gun at someone in government when you're just standing on the sidelines,' he says, 'but sometimes we fellows in business [he still thinks of himself as a transplanted business executive] aren't as hot as we think we are. We take a snobbish attitude toward government and think it can't compare to what we do in our factories or offices.

"The fact is, though, job for job, public work is more difficult. You need as much professional or technical proficiency as you do in any big job, but you must be less dictatorial than you can be in a private corporation. You have to do a selling job with your employees and with the taxpayers. Men who thought they were big wheels in big industry have stubbed their toes pretty embarrassingly when they took jobs in Washington. They found their big, busy-man approach pretty ineffectual once they came up against some of the pressures you get in government, but nowhere else. Everything an executive does in government is scrutinized much more carefully by the taxpayers, newspapermen, political enemies, and crackpots. This is good, but it does impose much more of a burden than that imposed upon comparatively anonymous executives in private industry.'

"The Tonti gospel doesn't picture men who work for government as self-sacrificing individuals who want to throw away a few years of their lives. He is the first to say his Parkway job has probably accelerated his own career. He thinks other men can gain recognition in public office probably much faster than they would if they remain junior or even senior executives in jobs they have now. If all this is true, why will he leave the Parkway? Tonti thinks that in two or three years, the infant superhighway will have overcome its growing pains. The challenge which faced him when he started will, for the most part, be gone, and the Parkway will be a staid old business.

"Tonti's own story since he joined the Parkway is in some ways the proof of his theories on government service, but in other ways it's the story of the rather appalling amount of work he has in mind when he talks about working for the people. His story has one other message, too. Our highly technical age has created a need for specialized people. Tonti, for instance, couldn't have been able to take his present post if he had not been what he was when he was. In fact, this article could easily have been called, 'D. Louis Tonti; a Study in Being Ready.'

"He fought for Robert Meyner when Meyner was only a country lawyer who wanted to become governor. Once governor, Meyner didn't forget Tonti. When an official casually mentioned one day that a job was open on the Parkway for a man who had some law or engineering training, something clicked in Meyner's

mind. Law? Engineering? He reached for the phone.

"A restless soul, he had already held executive posts in four companies, but he saw no quick way to reach the top where he was. Ever since college days, he had preached what he still preaches: at some time in his life, a man should serve government. Here was his chance, and it looked like a big chance. He took the job and started working in March, 1954, as assistant executive director. In December, he became acting executive director.

"The New Jersey Highway Authority, a special agency created to run the Parkway, had its hands full when Tonti came in. Big sections of it were still under construction; millions of dollars in property had to be acquired. Municipal officials in towns along the route had problems they thought should be solved immediately. 'The Parkway,' Tonti sums up, 'had its problems because it had grown so fast. Within three years, it had become worth \$350 million. It took some industries 50 years to become that big.' Since there were no precedents to be followed, he became an innovator to work out operating techniques. His toll collection system, for instance, is now so efficient that even the old and established Port of New York Authority has sent an observer to see how he does it. His automatic toll collection program may save an estimated \$375,000 in payroll costs in 1957 alone. Tonti has good reason for keeping his operations streamlined, above reproach. He knows he is walking on a tightrope strung over upturned political bayonets. Any suggestion of mismanagement might mean that his public career would be over.

"What about people who think that public service is a man-killer? Tonti, who nearly died from complications accompanying his ulcer trouble last year, admits it's hard work. He also thinks he may have gone overboard in the hectic first few months on the job. He regrets that he spends entirely too much time away from his home and family. The high-speed pace at which he works, he admits, has caused him to make blunders, some of which caused him sleepless nights. But, Tonti sums up, he is glad he took the job when it came up. He'll regret leaving it when the time comes to leave, but he'll always know that he said yes when he had the chance to say yes."—ALVIN GUTTAG, *Secretary*, Darby and Cushman, American Security Building, Washington 5, D.C. SAMUEL A. GOLDBLITH, *Assistant Secretary*, Department of Food Technology, M.I.T., Cambridge 39, Mass. MARSHALL D. MCCUEN, *Assistant Secretary*, 4968 West 14th Street, Indianapolis, Ind.

1941

Marge Stewart writes, "Carl continues to do well. He goes for as long as 13 hours out of each day breathing on his own with the rocking bed stopped. His next big task is learning to sleep when the bed is stopped. He now has had about four weeks of hydro-therapy. He is lowered on a litter into the whirlpool tank, which is at a temperature of from 100 to 110 degrees. His arms and legs are exercised right in the water, and he finds

this all quite relaxing. His spirits continue to be very good. He appreciates all the cards and letters, and hopes it won't be too much longer before he can sit up and try his hand at writing." Keep up the good work, Carl; and to all the rest of the Class, cards and letters are always welcome. Address: C. M. Stewart, 1498 Letchworth Road, Camp Hill, Pa.

By this time, all of you should have received President Ed's letter. However, for the benefit of any who may not yet have seen it, I'll review the high points. A group of us (Ed Marden, Ed Beaupre, Walt Kreske, Howie Morrison, Irv Stein, Reid Weedon, and the Secretary) met at the Faculty Club on March 7 for dinner and discussion of Class business. It was agreed that Class dues of \$2 per person per year, payable on May 1, should be collected for the purpose of stimulating more frequent Class activities, informative letters, and other means of increasing Class interest. This money will also provide operating capital for future reunion committees; for, although the aim is to break even on reunions, this ideal may not always be realized; and, certain necessary reunion expenses are incurred well in advance of the reunion and even in advance of receipt of registrations. Finally, this money will also help to cover the expense of issuing the Class Directory, which will contain listings of all members by name, location, type of work, or similar categories. So, if you have not yet done so, get the return card from Ed's letter filled out and into the mail, and mail your dues to the Secretary-Treasurer at the address below (checks payable to M.I.T. Class of 1941).

Plans were also made for a dinner and social evening at Endicott House in Dedham on April 26. We hope that New York, Chicago, and other concentrations of '41ers will arrange similar affairs to suit their tastes. Why wait five years for a reunion? Lead time for this column is six weeks (i.e., March 15 for the May issue), but if you know far enough in advance, I'll be glad to give your event all the publicity you'd like—just send me the information!

Social note (tottering of the bachelors' stronghold): Jim Thornton was married April 6, in Bronxville, N.Y., to a young lady (name unknown at this writing) on the European staff of the New York Times. Congratulations and best wishes from us all! Social note (expansion of the Collins stronghold): Shirley and I are proud to announce the arrival of our third, born March 9. Name—Alan David; weight—eight pounds, twelve ounces; other children—Bruce, six, and Judy, three.—IVOR W. COLLINS, *Secretary*, 28 Sherman Road, Wakefield, Mass. HENRY AVERY, *Assistant Secretary*, Pittsburgh Coke and Chemical Company, Grant Building, Pittsburgh 19, Pa.

1942

It is probably unnecessary to continue beating the drum and sounding the welcome call to join one and all at the Chat-ham Bars Inn on Friday, June 7, for a grand three-day week end. But just in case anyone has forgotten to send in the form and his deposit, this can serve as a

last-minute reminder to tell the committee (George Schwartz is chairman) that you will be with us for the gay reunion and that you will (not) bring your spouse. The advance registration, way back in February, was 53. We are planning for 200 and are making special arrangements for last-minute arrivals in excess of that number.

In New England this is the season of town meetings and local problems. John R. Thompson has been re-elected to the School Committee in South Hadley, Mass. During business hours he is production planning manager of Reed Prentice Company, a subsidiary of Package Machinery Company. During the past three years he has been chairman of the committee that has been largely responsible for completing three elementary school additions, renovating the intermediate school, and finishing the new South Hadley High School. A note from Elliott Friedman brings us up to date on Ervive Rips. He, Ervive, has recently been named chief engineer of Hamner Electronics Company of Princeton, N.J. Hamner manufactures nuclear and electronics instruments for medical, industrial, and fundamental research work.

A feature story in the New Haven Sunday Register tells of recent activities of Newman Marsilius, Jr., who is chairman of the Finance Committee of the Connecticut General Assembly. While very much concerned with the ways and means by which the Connecticut legislature must provide the funds for the State's operation, Newman is devoting a great deal of his time to broad basic problems: "... the most important single piece of business which the General Assembly has before it is State assistance to higher education. Primary and secondary educational grants are already pretty well under way, but private and community colleges face serious problems which we should now give full consideration." As a business man he also feels the need for improving legislative research facilities. "I am convinced," he says, "that many of the problems facing the General Assembly could be resolved to a much greater degree if sufficient time could be given to their analysis." Pointing out that most of the Legislators must earn a living in addition to attending the General Assembly, Mr. Marsilius claims, "... we are all faced with a constant and frustrating lack of time. It's my belief that a reasonably sized full-time merit system research staff available to the General Assembly would save the State a great deal of money."

When he is not occupied at the State Capitol, he serves as president of the Producto Machinery Company of Bridgeport. They manufacture special automatic tools for the aircraft and automobile industries. Newman took graduate work with us, and his father is also a Tech Alumnus. He has been a director of the Bridgeport Hospital, Y.M.C.A., Chamber of Commerce, Red Cross, and many other community activities. Newman, his wife, Marie, and their three children, Newman, 3d, eleven, Diane June, nine, and Barbara Ann, three, live in Trumbull.

Sandy and I are looking forward to seeing you all at the Reunion. The June issue of The Review will carry lots of

recent address changes while the July issue will still be too early for a report on our happy holiday week end—so join us on the Cape and add to the festivities. —LOU ROSENBLUM, *Secretary*, Photon, Inc., 58 Charles Street, Cambridge 41, Mass.

1943

Politics dominate the news this month. Jean Hartshorne was a candidate in the March elections for the vacancy on the Wakefield, Mass., Board of Public Works. We haven't heard the results of the elections yet, but hope to report them in a future issue. Jean is in the insurance business.

Cal Dunwoody, who is deputy chief of the Rhode Island Division of Forests, has been busy defending his policies which were designed to clear the forests in order to develop a greater lumber industry. Cal's program had to do with girdling or killing oak and other low-grade hardwood trees to make room for conifers or softwoods to grow. This is in accordance with a resolution passed by the New England Section of the Society of American Foresters. The various fire chiefs' and forest wardens' associations complained to Governor Roberts of Rhode Island that this would be a "butchery" of oak trees, and that these trees were necessary for shade and to keep moisture in the ground. Well, this secretary won't take sides on the issue, but I think the Class should back Cal down to the last splinter.

Ralph Leader of Needham, Mass., has been appointed chairman of our 15th Reunion Committee. He and his gang will be busy from now on lining up the place for the big affair, and sometime next winter you'll hear all about it. Andy Hillhouse has moved from Washington to Des Moines, Iowa, where he is with the Solar Aircraft Company. Bill Cain has moved from Aberdeen, Md., to Camillus, N.Y. —RICHARD M. FEINGOLD, *Secretary*, 49 Pearl Street, Hartford 3, Conn.

1946

Before returning to the still mounting pile of questionnaires, we have a few newspaper clippings to report. Theodore S. Bacon, Jr., who received his master's degree in city planning with our Class, and is now associate dean of Amherst College, addressed the Berkshire County Real Estate Board, in January, on the subject of "Land and Its Best Use." Ted is chairman of the Amherst Planning Board and treasurer of the Massachusetts Federation of Planning Boards. John H. von Lonkhuysen, who was chief of technical departments, has recently been appointed manager of the Avionics Division of the Weapon Systems Division of Bell Aircraft Corporation. The Avionics Division has charge of all electronic and servomechanical work, including the advanced programs Bell has undertaken in inertial guidance, radar, communication systems, autopilots and other control devices, such as automatic aircraft landing systems. John went to work for Bell in 1942 and worked on the design of P-63 and P-59 airplanes; headed the aerodynamics research group, and then did

structural analysis and dynamics on the XP-83 and the X-1. He attended M.I.T. in 1946 studying guided missile systems.

Daniel M. Kelley was married in November to Miss Lilyan Lotrecchiano of Brewster, Conn. William Rapoport assisted at the ceremonies as usher. Richard C. Mulready has recently been assigned to a new position as project engineer at the Pratt and Whitney Aircraft Florida plant. There have been a number of newspaper articles recently about Miss Marion Hogan who received her master's degree in meteorology with our Class. She is believed to be the only woman industrial meteorologist in the world, and last year was named by *Fortune* magazine as one of the 10 top women business executives in this country. She founded her business, Weather Services, Inc., 11 years ago, and now employs 30 people and occupies two floors of the John Hancock Building in Boston. The business services about 350 clients, including municipalities, utilities, bakeries, restaurants, airlines, radio stations, and contractors. Another meteorological graduate of our Class, Dr. Thomas Malone, is director of the Travelers Service and the Travelers Weather Research Center in Connecticut. Recently he gave a talk at Wethersfield, Conn., on "Weather, Facts and Fallacies."

Dr. Hooper duBois Johnson is chief resident, Ear, Nose and Throat, at North Carolina Baptist Hospital, Winston-Salem, N.C. He expects to complete his residency in July and establish his own practice in Wilmington, N.C. Whenever he can get away he and his wife, Betty, travel to the major sports car races around the East. Hooper has raced his personally built and maintained class H car at such places as Sebring, Watkins Glen, and Elkhart Lake. Thomas W. Brockenbrough is associate professor of civil engineering at the University of Delaware, instructing undergraduates and graduate students; is engaged in research; and is chief advisor to engineering freshmen. He is also program chairman for the Delaware Section of the American Society of Civil Engineers. Tom and his wife, Mary, live at 202 S. College Avenue, Newark, Del.

Dr. Howard E. Hartman writes in his best M.D. scrawl, if I've ever been unable to read one, that he is a practicing urologist in St. Louis, has one child, and they all live at 5417 Christy Boulevard, St. Louis, Mo. Mason I. Lappin is president of Lappin Brothers, Inc., Plumbing and Heating Contractors in Malden, Mass. Shirley and Mason and their two girls live at 17 Appleton Street in that city. Robert J. O'Donnell is an engineer for the California Research Corporation, a petroleum refining concern in El Segundo, Calif. The O'Donnells live at 869 10th Street, Manhattan Beach, Calif. John K. Pollard, Jr., received his Ph.D. from Cornell University, and is now with their Department of Botany working on research in plant physiology. The Pollards and their three boys live at R.D. #5, Ithaca, N.Y. Alan Sands is secretary and treasurer of the Sands Manufacturing Company of Cleveland, Ohio, and lives at 18231 Sherrington Road, Shaker Heights, Ohio.

Walter A. Sauter is a project engineer

working on the design and development of automatic flight control equipment for Lear, Inc., Santa Monica, Calif. He recently has been in charge of design, development, and prototype production of F-104 three axis damper system. Walter earned his M.S. in electrical engineering from Cornell University in 1949, spent two years back in the Navy from 1951 to 1953 as electronics officer on the U.S.S. *Benham*, DD-796, was married in 1954 and now has two children. The Sauter's address is Route No. 2, Box 201, Topanga, Calif. Aiting Tobey Yu received his Ph.D. from Lehigh University in 1949, taught for a time as assistant professor in engineering mechanics at New York University, and now is chief design engineer at Robins Engineering Division of Hewlett-Packard, Inc., a materials handling, manufacturing, and engineering firm in New York. Aiting serves as a reviewer for *Applied Mechanics Review*. The Yus have two children and live at 55 Coralyn Avenue, White Plains, N.Y. The Melvin M. Levines and their two daughters live at 3431 Landon Street, Lynchburg, Va. Mel earned his Ph.D. at the University of Virginia two years ago and is now a physicist in the Theoretical Reactor Analysis Section of the Atomic Energy Division of Babcock and Wilcox Company in Lynchburg. Robert Goodstein is currently working on his Ph.D. while serving as an instructor in statics, dynamics, and strength of materials in the Engineering Mechanics Department of Ohio State University in Columbus, Ohio. He has co-authored a paper which was published in the *Journal of Applied Mechanics* in September, 1955. The Goodsteins and their two boys live at 1065 Sells Avenue, W., Columbus 12, Ohio.

Rouholah Zargarpur lives at 420 Thatcher Street, River Forest, Ill., and is a project engineer at the Stewart-Warner Corporation, in the Automotive Instrument Division, Engineering Department, where he is responsible for dashboard instruments from their inception to production. He is also a public speaker and lecturer for the religious organization, The Baha'i World Faith, and is a member of many of their national committees. Lieutenant John R. High, U.S. Navy, is gunnery officer of the U.S.S. *Gyatt*, DDG 712 (FPO New York, N.Y.), a newly commissioned (and the first) guided missile destroyer in the Navy. Prior to, and in preparation for this assignment, he attended the Navy Postgraduate School at Monterey, Calif., where he received his B.S. in electrical engineering, and then M.I.T. again, where he earned his S.M. in aeronautical engineering in 1953, having received his S.B. in aeronautical engineering from M.I.T. in 1946. He also spent 32 months on the attack aircraft carrier, U.S.S. *Oriskany*, CVA34, as fire control officer. John was married in June, 1946, and Elizabeth and their two daughters make their home at 5 Pelham Drive, Natick, Mass. Frank R. Stevens has joined the Missile Systems Division of Raytheon Manufacturing Company in Bedford, Mass., where he is administrative assistant in the Electronic Development Department. Frank and his wife have two children, and they have recently moved to Baker Bridge Road, South Lincoln, Mass.

I have many more questionnaires to cover, but time has run out on me this month, and I must get this in the mail tonight or miss the deadline. Look for us next month for more of the same.—
JOHN A. MAYNARD, *Secretary*, 15 Cabot Street, Winchester, Mass.

1947

Not too much news this month—it looks like everyone is saving his juiciest tidbits for personal exchange at the reunion next month. As you read this, you probably have been deluged with all sorts of letters, post cards, possibly even telephone calls, exhorting you to come to the shindig. So if all those various and sundry communications have failed to do the trick, probably nothing I can say here will have much effect. But we do expect to see hordes of you at Lenox—the Committee has planned a fine program—and the success of the week end is a geometric function of the numbers who attend. Think of the cataclysmic glory if all 1,500 or so of us showed up. Dreamer!

The odds and ends of news I do have to report deal mostly with the honors our classmates are garnering for themselves. Jordan Baruch was named Outstanding Young Engineer for 1956 by Eta Kappa Nu, the honorary electrical engineering society. Jordan is vice-president of the New Products Division, Bolt, Beranek and Newman, Inc., the Cambridge acoustics consultants. First captain of the newly commissioned destroyer, U.S.S. *Manley*, is Commander William Rowen, U.S. Navy, and Dr. John Fisher has been featured in a General Electric advertisement dealing with new alloys. John is manager of the Physical Metallurgy Section of the General Electric Research Laboratory. Sam Kahn has been appointed patent solicitor in the development and patent department of Standard Oil Company of Indiana. Finally, a very charming note from Vance and Nancy Raynsford announces their adoption of Robert Vance who will be a year old on the sixth of next month. See you in Lenox.—
CLAUDE W. BRENNER, *Secretary*, 100 Memorial Drive, Cambridge 42, Mass.

1948

The mail since your last notes have appeared on these pages has been gratifyingly heavy, and it becomes a real pleasure to pass along to the rest of our classmates the whereabouts and activities of those who have contacted us. Before we go further, let us announce with pleasure and pass along our congratulations on the marriage of our Class President, Dave Cist, to Mary Schaefer of Philadelphia. The couple were married on November 24 and are living at 1027 Greenville Street, Aiken, S.C. Proceeding further down the list of vital statistics, we find that John Mitchell was wed to Joan Cavanagh. Jay Schwartz, who is now a practicing attorney in New York City, was married way back in September to Phyllis Rome. John Kearney, currently an engineer with Corning Glass Works in Corning, N.Y., became the husband of Barbara Jean Lawler, and Paul Buckingham, who was recently discharged from

the Air Force and who has just joined the Fluor Corporation in Los Angeles, was wed to Miss Blanca Danley.

Stan and Lorraine Abkowitz announce the birth of Miles Alan, their first child, on January 3, 1957. Stan goes on to write, "After graduation from Course X, I joined the Foster Grant Company in Leominster, Mass., where I served as plastics engineer until 1951. At that time I joined the staff at the Watertown Arsenal Laboratory as a materials engineer and aided in the early development of titanium metal and its alloys. On October 23, 1954, Lorraine Adkins and I were married. She hails from Chelsea, Mass., and is an alumna of Emerson College across the river. At this time I was also working on a book, which I co-authored, titled *Titanium and Industry*, published by Van Nostrand in 1955. Early the same year I received a call to Mallory Sharon Titanium Corporation in Niles, Ohio, so my wife and I went west. We are now living in Warren, Ohio, and like the area and work very much. I am supervisor of Alloy Research and am working diligently on the development of improved titanium base alloys for our modern aircraft and civilian application."

Mr. and Mrs. Whit Mauzy, on October 22, 1956, had their first child, a daughter, Eleanor Anne, in Maricao, Venezuela. Eleanor Ann is a niece of George Macomber, also Class of '48. Whit was recently elected first president of the Western Venezuela section of the A.I.M.E. (Petroleum Branch). He is employed by the Creole Petroleum Corporation as a reservoir engineer. On October 7, 1956, Sam and Eleanor Levine announced the arrival of a son, Michael Alan, and Mr. and Mrs. R. F. Rogers recently had a third child, their first son. Mr. Rogers is presently with the Palmar Corporation as assistant treasurer.

A number of interesting letters and announcements were received relating to vocational advancements and activities. From Mario DiQuillio we learned, "From graduation to date I have worked in six states and Canada in aircraft consulting. I find job shopping, as it is called in aircraft, best suited to my talents. I am still a bachelor." Ezra (Bud) Garforth writes, "The run down on my family is as follows: Wife, Edna; children—Jack, five and one-half years, and Donald, three. We are building a new home in Gulph Mills, Pa., which was to have been ready in 1956. We sold our home in Springfield and went into storage in September. Needless to say, we are still in storage; expect to be in by March 1. Guess the last time I wrote you I was with the Minnesota Mining and Manufacturing Company. I left them, however, in January of 1954 and went with Philadelphia Steel and Wire Corporation in Philadelphia. This company produces cold rolled steel strip, cold rolled flat wire, and Helical Spring Lock Washers. I have been doing sales and engineering work for the past three years and was just made assistant vice-president of the Corporation effective January 2, 1957." Bud also adds that he is hoping to see many of us at our 10th reunion, which is coming up in the not-too-distant future.

Your Assistant Secretary, Dick Harris, who now has two sons and a daughter,

was recently promoted to the position of assistant comptroller at the Norton Company, Worcester, Mass. In January, Dick also ran for the school board in his home town of Grafton. At this writing, we have not heard the outcome of the election. Adolph Monosson and two associates recently organized the Berkeley Finance Corporation in Boston to fill the non-banking credit need that exists for the growing small and medium sized companies in the Boston and New England area. Adolph is a past treasurer of the Twenty Corporation, a commercial finance company, and has been a member of the firm of Cosmopolitan Manufacturing Company, one of the leading manufacturers in the men's clothing field, where he held the office of vice-president.

Walter Hatch was recently promoted to assistant supervising engineer by the Esso Research and Engineering Company, Linden, N.J. Walter was in England for two months last summer for the start of a new vacuum distillation unit. He had been a senior project engineer in the process engineering section of the Economics Division. Although it is not news to those who know him, we have just been informed that Abe Dranetz has been director of engineering for Gulton Industries since 1949. Abe's headquarters are in Metuchen, N.J., where he sees that guided missile instruments, equipment to test the ruggedness of military equipment, components that go into industrial noise abatement programs, and a host of other products, go smoothly from assembly line to customer. Heading a new White Mountain recreation development is George Macomber, who is now a resident of Concord, Mass., and vice-president of the George V. H. Macomber Company. George, you will recall, was a member of the 1948 and 1952 United States Olympic Ski Teams and was national downhill and slalom champion in 1949. His project is the development of Wild Cat Mountain into a summer and winter ski attraction.

Another classmate, Alexander Aldrich, son of Winthrop Aldrich, United States Ambassador to Great Britain, has recently been appointed secretary of the Police Department of the City of New York. Aldrich is a Republican in a Democratic administration, and was awarded the post after the police commissioner was impressed with his "incisive questions" at a Prison Association luncheon. Donald Graham, who had been executive director of the Providence, Rhode Island, Redevelopment Agency, recently resigned his former post to accept a position as planning administrator for Boston where he will head a 32-member staff.

Other brief notes from the News Service include the following: Michael Burlingham has been named manager of engineering for the Cramer Controls Corporation. He will be responsible for the entire engineering function, including product design and development programs, model making facilities, and laboratory and research activities. Michael was most recently with the Reeves Instrument Corporation, where he served as product engineering coordinator. Ed Kratochvil, who now lives in Evanston, Ill., left Abbott Laboratories recently to take a position as sales representative for the

Scientific Products Division of the American Hospital Supply Corporation, serving clinical and industrial laboratories in the Chicago area. Ed is still single. Dennis Allegretti, on January 1, became a member of the firm of Bair, Freeman, and Molinare, Patent Attorneys in Chicago. John Thomson is news editor of the *Daily News Miner* in Fairbanks, Alaska. Al Yurgelun has become chief inspector of the Barden Corporation of Danbury, Conn. Formerly, Al was quality control superintendent of the Wheeler Insulated Wire Company of Waterbury. John Moran is employed at the International Nickel Company in New York. He was married in May 1956, and, at the time we last heard, was expecting a child some time in February. Walter Lowrie moved to Denver in July to become principal engineer in charge of higher mechanics at the Martin Company's Denver Division. They have three children; two girls, six and four, and a boy, age one. The Lowries are looking forward very much to skiing this winter in the Rockies.

We received a card from Ken Brock to say "hello," and to let us know that he is still advertising manager at "dear old Fenwal." Walter Mellen is now teaching and is an assistant professor of physics. Donald Towse has been a consulting geologist in oil and uranium in the Williston and Montana areas. He is now temporarily at University of California at Los Angeles as a visiting professor for the present school year. He plans to return to consulting again in the spring. Milton Kamins registered in the fall as a graduate student at the California Institute of Technology in Pasadena. Milt is working toward his master's degree in mechanical engineering. Clarence Schultz, who formerly served as director of microwave research for the J. B. Seeburg Company of Chicago, and who has as his field of study a special theory of metals and semiconductors, has been appointed associate professor of electrical engineering at the University of Connecticut. Donald Walsh recently became an instructor in the Management Development Department of International Business Machines. He joined the company in New York as a routing analyzer in 1948. Allan Munck has recently been appointed a research fellow in medicine at the Harvard Medical School. Allan will be affiliated with the Department of Biology at M.I.T. He is a native of Argentina. Albert Tom is now a sanitary engineer working for the World Health Organization in Taiwan.

Recent talks given by Alumni which have come to our attention are those of Dr. Thomas Pigford, who is a professor of nuclear engineering at M.I.T. Dr. Pigford showed slides which disclosed the extent of nuclear research at M.I.T. George Hawkins, now a senior engineer at the International Business Machine Corporation Engineering Laboratories in Poughkeepsie, N.Y., in September addressed a Connecticut valley section of the Institute of Radio Engineers. George has been working on a design for a transistor calculator. Herb Kindler, who is now director of technical programs for the Instrument Society of America in Pittsburgh, writes: "Upon graduation I worked for the J. P. O'Donnell Engineering Firm, where I

first became interested in instrumentation. I joined the engineering department of Brown Instrument Division of Minneapolis-Honeywell in Philadelphia, and later applied much of the instrument experience acquired at Brown to chemical and petroleum processes at the Catalytic Construction Company, also in Philadelphia. It was in Philadelphia that I married Phyllis Pitegoff, a graduate of the Stella Elkins Tyler School of Fine Arts. Prior to our marriage she was president and partner in the Hanco-Piday Greeting Card Firm which designed and manufactured silk screen cards for industrial firms. In 1954 I moved to Oklahoma City to work for Black, Siballs and Bryson in their oil field division. I recently left as section head of Gasoline Plant Engineering to accept the position of director of technical programs with the Instrument Society of America. My present position entails guiding and coordinating the activities of three I.S.A. Divisions: Standards and Technical Practices Division, Technical Division, and Industries Division. A moderate amount of traveling is involved, which I hope will give me the opportunity to renew some old Tech friendships."

Herb also suggested that the men of '48 might be interested in a 10-year Class profile. He suggests that appreciable Class interest would be aroused by the publication of statistics which indicate in what direction our classmates have matured and progressed. The publication, as he sees it, could be presented in two sections. One, a compilation of statistics based on a confidential questionnaire, and the other, individual biographies. The source of information would be a questionnaire containing a separate confidential unsigned page to be returned in a separate envelope, if desired. The confidential inquiries might, for example, include economic, social, intellectual, and miscellaneous development. The cost of such a profile would be very modest, if enough members of the Class were interested in subscribing to it. Herb, for one, has volunteered to work on such a project, and Dave Cist and your secretary both look on the project favorably, but would like to secure the opinions from other members of the Class before deciding whether it would be practical. If any of you reading these notes would be willing to take part in the development of such a profile, we would be most pleased to hear from you. — **WILLIAM R. ZIMMERMAN, Secretary**, Moraine Paper Company, West Carrollton, Ohio. **RICHARD H. HARRIS, Assistant Secretary**, 26 South Street, Grafton, Mass.

1951

How often have you wondered, "What's in a name?" We have once in a while, but we really did when we heard from Dave Prophet that he is now president of Weather Engineers, Inc., a company organized last December for specialized forecasts and services for business and industry. Dave's company also conducts research in meteorology and operates at the Municipal Airport, Sacramento, Calif.

Wedding bells are still ringing for classmates. Art Kettley and Jane Ericson were married last November in Summit, N.J. Art is with the Bell Laboratories in New

York, commuting from Murray Hill, N.J. Jim Hodges and Margaret Hill were joined in marriage last December in Wilmington, Del. Tony Stathoplos and Sybil Chatham were wed in November in Manchester, N.H. Tony is with the Nuclear Development Corporation of America in White Plains, N.Y.

Notices of new jobs since last June show many classmates to have added more degrees to their collections. Bill Ferguson joined the staff of Baird Atomic Instrument Company of Cambridge, Mass., last summer as sales-engineer for the southeast and southwest, operating from Atlanta, Ga. Bill earlier spent two years at Fort Monmouth for Uncle Sam and one year with Anaconda Wire and Cable Company before entering Harvard Business School, where he was graduated last June. Bill Gilbert completed his Ph.D. in analytical chemistry at the University of Minnesota last June and is now with the Aircraft Nuclear Propulsion Project at Oak Ridge. George Turin received his M.I.T. Sc.D. in electrical engineering last June and is now with the Hughes Aircraft Company. He is still active in the classroom, teaching a graduate course at the University of Southern California at night. Earl Kletsy had a year of study at the Technische Hogeschool in Delft on a Dutch Government Fellowship. He returned last December to join the General Electronics Laboratory of Cambridge. Before his European studies, Earl spent two years at the U.S. Air Force Cambridge Research Center.

Marv Burns completed a three and a half year duty with the U.S. Air Force last November. He served at the Army Chemical Center near Baltimore, at WADC near Dayton, and at Eglin Air Force Base in Florida. Now he is with United Engineers, Inc., a Boston consulting firm. His first assignment was with General Electric of Lynn on turbines. Marv ran into Jay Rosenfield at General Electric, where Jay is a valve analyst. James Young left the Acoustics Laboratory at M.I.T. last fall to join the staff at the University of California's Los Alamos Scientific Laboratory as a physicist. Ivan Lyons recently took a position with the Whiting Research Laboratories of Standard Oil of Indiana. John Degnan has recent begun analyses of rocket engine systems with Reaction Motors, Inc., in Denville, N.J.

Several promotions have been reported. Dewey and Almy has announced the promotion of Carroll White to assistant manager of container products from product manager for can sealing compounds. Joseph Gurland was promoted from assistant to associate professor of engineering by Brown University. Rex Bradford was promoted to project engineer in Exploratory Machines and Systems Development at the International Business Machines Research Center in Poughkeepsie, N.Y. Alfred Ginkel, Public and Personnel Relations Director of The Pfaunder Company, is being transferred to general management assignments in Germany with Pfaunder-Werke A.G. located in Schwetzingen. John Monday was named sales manager of the regulator division by the Hevi-Duty Electric Company of Wisconsin.

Dick Howe writes he is in his third year at Pennsylvania State working on

silica. He finds no bridges to cross to get to school, no trolleys, no soap factories, but about 4,000 coeds — a new way to get schooling. Jerry Levine just finished three years in Europe as project coordinator and acting project administrator for Hazeltine Electronics on Navy Procurement Contract. He is still with Hazeltine as project administrator on a new research contract. Bill Hoffman is also with Hazeltine working on man power scheduling. Ron Greenwald was due his discharge from the Navy in March after three years in Carmel. Mike Hoffman is a first lieutenant at WADC. Mark Nelkin is with General Electric in Schenectady. Howie Schwartzman is in Cincinnati with Procter and Gamble Overseas Construction.

Jim Stuart says he "spent five years in industry studying poor management. Now at the School of Industrial Management studying, I hope, good management." Jim says Jack Magidson is manager of quality control for Metalizing Engineering Company while completing his doctorate in business administration at New York University. Lou Dion is with Corning Glass in Corning, N.Y. Al Fonda finished his service recently to return to General Electric at Appliance Park, Louisville, in the Household Refrigerator Division. He writes, "Still single. Nothing exciting." Dan Magnus sent in these high lights of his activities. He was married in December, 1954, while serving in Germany. His wife, Frances, hails from New York City. His discharge came in 1955, and he is now working in applied mechanics for the Gruen Applied Sciences Laboratories in Hempstead, N.Y. Pete Philliou is with the same company in research and development in subsonic and supersonic flow. Pete's experiences include being company commander of a Signal Training Company at Camp Gordon, Va., and job assignments with General Electric at Lynn and with Republic Aviation in Farmingdale, N.Y.

Louis Stern earned his M.S. in soil mechanics at Harvard in 1952, spent two years in the Army surveying, two years as soils engineer for Capitol Engineering of Dillsburg, Pa. One assignment with Capitol took him to South Vietnam. Last July he married Marilyn Bober of New Haven, and is now studying business and construction at Stanford. Pete Lang is now with the Nuclear Energy Products Division of ACF Industries, Inc., the company building the nuclear reactor for the Institute. Dave Schoeffel writes that his draft board wanted his experience gained in the Plastics Division of Monsanto of Springfield, Mass., for the Army Chemical Center outside Baltimore. He expects his discharge this July to allow his return to Monsanto. Last October Dave's second girl was born, Sara Erwin; Carol Dianne is now two years old.

News clip agencies and the M.I.T. personnel who forward clippings are wonderful. Without them we would never have known Ralph Devir was recently responsible for introducing an ordinance for a new building code for the city of Malden, Mass. Also, we normally would not have read all of the news notice about the unfortunate auto accident last December involving the daughter of Dr. Paul Dudley White, the heart specialist. It was called

to our attention, though, that the daughter is also the wife of Bob Nock, who is serving with the U.S. Air Force. — RICHARD W. WILLARD, *Secretary*, Box 105, Littleton, Mass. ROBERT S. GOOCH, *Assistant Secretary*, Freese and Nichols, 407 Danciger Building, Fort Worth 2, Texas.

1952

Have you noticed that there seems to be less and less on top to comb every morning or that there is an ever-increasing glare up there? Do you say to yourself, "It never really was very thick," or "look at the new flaxen blond hair — it almost looks white, doesn't it?" You guessed it; it's five years since we got out. In just one month our reunion will be coming up, a chance to see just how much more the other guy has aged. Golly, it makes you feel young to see how much kinder the last five years have been to you than to your old drinking buddy. Did those Tau Bete's make out better than you, or can you continue to chuckle that grades are only one small measure of achievement, that one's sparkling personality, good looks, and suave manner were all more important. And how about those "big-wheel" politicians, the ones who were always going around smiling and saying hello to everyone. Are they still up to their old tricks, grabbing for every office in sight? Then there was that quiet little guy who used to sit next to you in Organic Chemistry. Is he really president of his own business? Oh, well, even if those other guys didn't make out as well as I did, wouldn't they be surprised to find out how well I've done. Me — boy nothing — the name on the roll nobody could ever remember, happily married with two great kids, working away at a great job. Wouldn't they all be surprised? I've just got to get to the reunion.

Let's see — it's going to be the week end of June 8 and 9 at the Mayflower Hotel in Plymouth, Mass. Hmm, it looks like a good deal. I see that we're even going to elect Alumni Class officers for the next five years at the reunion. Who knows — maybe I may be able to get one of the "big-wheel" jobs. I wonder if any of my friends will nominate me? Wait a minute — I can nominate myself. Well, just to be modest, I'd better sign somebody else's name to the nominating letter. George Q. Phfangschleister, that's a good name. Let's see, those nominating letters were supposed to be sent to Charlie Beaudette, 6 Conry Crescent, Jamaica Plains 30, Mass. Gee, and I could always nominate Harry Flesch for Class secretary; he could certainly do as good a job as our present secretary. Oh, that reunion sure looks like a good week end. Nothing to do but goof-off and get drunk with the old gang. Hmm, I can even take the little woman with me and show her off. Maybe after she meets my friends she'll understand me better and be proud of how far I've come since my undergraduate days. I see that a few more of the Class have bitten the dust. On February 2, Barbara Soule, a graduate of Smith College, and Jack Baumann were married in Hamilton, Mass. Jack is presently working the Industrial Liaison Office at the Institute and in his spare time is laboring for the reunion committee.

The peripatetic bachelor himself, Mike Goldman, found someone who could tie him down. He was wed on February 3 to Dorothy Schanberg, a Lassell Junior College graduate, in Brookline. After straightening things up at the Springfield Armory, Mike is now working for the General Electric Company. According to the newspaper clipping, Mike and Dorothy honeymooned in Europe and then set up housekeeping in Endicott, N.Y. Other '52ers in the wedding party were Larry Golden and Arnie A. Kramer. Sherry Ennis and Dick Rand were married on January 26 in Tullahoma, Tenn. The Rands are now residing in Kingston, where Dick is working for International Business Machines. No other details in the newspaper clipping. One of our Rhodes scholars, Carl Shiffman, was married last October 28 to Joan Saltzberg in Boston. Joan is a graduate of University of Vermont and Carl received his Ph.D. from Oxford University in England. The Shiffmans are now living in Washington, D.C., Carl's work unknown. Maury Davidson was in the wedding party.

Other newspaper clippings tell us the following about members of our Class: Pete von Hippel graduated from the Navy Officers Candidate School in Newport, R.I., on November 21. Sundaresan Ramachandran was named a research advisor to the melting section of the Research Laboratory of Allegheny Ludlum Steel Corporation in Brackenridge, Pa. Dr. Frank Wilson received his Ph.D. from M.I.T. in February, 1957, and joined the staff of Du Pont's Polychemicals Department research division as a physical chemist at the Experimental Station in Wilmington, Del. Lieutenant Bob Doane, a project engineer with the Directorate of Airborne Systems Testing at the Air Research and Development Command's Air Force Armament Center, Eglin Air Force Base, Fla., was recently awarded a commendation ribbon by the Air Force in recognition of his work as a member of a highly qualified team of personnel involved in an experimental flight test program for B-52 bombers. Lieutenant Ralph Slater has been named commanding officer of the 95-foot patrol boat 95320 at the Coast Guard Mooring at Fort Trumbull, Conn. Stanley Charm received his Sc.D. in food technology from M.I.T. in January. Stan is an instructor in chemical engineering applications to food. He is married to the former Shirley Zitaner of Bangor, Maine. Henry Nardone has been named chief project coordinator of the Electric Boat Design Department in Groton, Conn. Joel Ekstrom was recently discharged from the Army and has begun work on his master's in electrical engineering at Johns Hopkins.

John Brion was awarded the advanced degree in marine mechanical engineering from M.I.T. in September. He is currently employed by the Electric Boat Division of General Dynamics in Groton, Conn. Hank Hohorst, who since 1952 has received his M.S. in chemical engineering from the University of Colorado in 1953 and has been working for Procter and Gamble at Staten Island, N.Y., has recently joined the production department of the Monsanto Chemical Company Plastics Division in Springfield, Mass.

Frank O'Neil has been appointed assistant to the production engineering manager of the Winchester Division of Olin Industries in New Haven, Conn. Since 1952, Frank has been in the Army for two years and then served as a methods engineer with Winchester before his present appointment. He is married to the former Joan Haumerson of Racine, Wis., and has one son, Thomas, two. Frank is currently studying part-time for his master's in industrial administration at Yale. Henry Kirk is now doing research and development on nuclear power plants and the Bettis Plant, atomic power research laboratory run by Westinghouse for the Atomic Energy Commission. Janusz Sciegienny has joined the technical staff of the Ramo-Wooldridge Corporation Boston facility to do work in microwave research and systems engineering.

Lou Karvelas is a member of the Technical Service Division of the Humble Oil and Refining Company in Baytown, Texas. Jim Margolis just recently finished a six-month tour of duty with the Army at Fort Dix, N.J. Before entering the Army, Jim was employed by the Stauffer Chemical Company in New York City. Major Bill Levin, who was both an instructor to and a member of the Class of 1952, graduated last June from the Army's Command and General Staff College at Fort Leavenworth, Kansas, and is now a member of the Korean Military Advisory Group. Bill Chen received his master of science degree in aeronautics from California Institute of Technology last June.

Enough for this month. Must save some news for next month. Hope to see you all at the reunion. I'm sure you will all be relieved to know this is one of the last columns of mine that you all will have to suffer through. — STANLEY I. BUCHIN, *Secretary*, 31 Oakdale Avenue, Wellesley 93, Mass.

1954

Dean Jacoby, who apparently found his generally sedentary job in the Air Force in conflict with his natural inclinations, has really been flitting since he retired from the service last fall. He claims that a month of this traveling was for the purpose of finding a job, and the purpose was successfully thwarted. After that, he threw pretense to the winds, packed up his skis, and headed for Europe "for a couple of months." Some people really have it rough! In any event, our roaming president sent along a number of news items before he started across the ocean.

John Flender has shed his Air Force blues and is working for a "newly-formed non-profit research organization" in Boston. Lieutenant and Mrs. Jack Smith and their young one are stationed in Colorado Springs where Jack is involved in the architectural end of the construction of the Air Force Academy. Tom Bird is drawing maps for the Corps of Engineers in Alexandria, Va. Dave Wones and Don Marshall have both passed their oral examinations in their quest for doctorates in geology at M.I.T. Dave is working on his thesis at the Carnegie Institute of Technology, and Don is working on his at Tech. Ernie Abrahamson has, or is about to have his doctorate in metallurgy.

Charlie Burnham is testing airplanes for the Air Force in the wilds of Alaska, and making plans for his return to Tech after his discharge to work on a doctorate in geology. (Dean, who worries about such things, notes that Charlie is also the Class's northernmost skier.) Stewart Smith is stationed on Long Island with the Air Force, and is also planning to study geology after his discharge. Ron Lovasz is a club officer at Wright-Patterson Air Base in Ohio. Tom Henderson, with wife and son, has been transferred by the Navy from Hawaii to Connecticut. Bob Reichard has returned from a year in France working for "R.C.A. or some such company," according to Dean. (No wonder Dean didn't get a job.) Bob is currently operating out of Cambridge, Mass. Roy Riedinger has slipped out of the Army and into the Wharton Graduate School in Industrial Management at the University of Pennsylvania. Bob Anslow was married April 6 in Cincinnati to Ticki Simpson, and is now spending six months in the Army. And that closes out Dean's report. Well done, Deano.

Bill Ferrini has completed his tour with the Air Force and is now studying at the University of Rome's School of Architecture. Gerry Perlstein has also returned from active duty and, at last report, was in Vineyard Haven, Mass. Shmuel Yanai is a captain in the Israeli Navy. Word has come through that Joe Dankese was married last fall to Shelia Heffernan in Brookline, Mass. Jim Brown is a carrier pilot for the Navy. Bob Wilson is earning his bread and board at the Gardner Board and Carton Company in Lockland, Ohio. — EDWIN G. EIGEL, JR., *Secretary*, 3654 Flora Place, St. Louis 10, Mo.

1955

Well, we are back again after giving you people a month's rest. There is a jazzy explanation forthcoming, but upon confessing my tale of woe to Dell, we did agree that when a column is missed, the wealth of information we receive along with your complaints is much better than when we just plain plead for news in the usual manner. This is sort of an underhanded means of getting information, so how about telling us what a good job we are doing (with some information attached) when we *don't* miss a month?

Here it is: Henry Weber (who is now a research assistant in Course XV) and I bought a Cessna 140 airplane in December. We had been doing a considerable amount of local flying, and when Washington's Birthday made for a three-day week end, we decided to take off for the wilds of Canada and spend a skiing holiday at Mt. Tremblant in the Laurentians of Quebec. We had a gay time on the way up, and set the plane down on frozen Lake Tremblant just three and a half flying hours from Boston. Planning a return flight for Monday, we then proceeded to enjoy a week end of fine skiing and French-Canadian hospitality. Upon waking up early Monday morning, we found a heavy layer of fog blanketing the area which, of course, made flying impossible. Tuesday was just the same and, although the food and relaxation was *très bon*, we

were both anxious about getting back since Henry had important work to do for his boss and I had to report for active duty with the Air Force in Boston on Thursday. We decided to wait one more day, and, luckily, Wednesday morning showed up crystal clear and sunny. After trying unsuccessfully to get one gas tank filled with Canadian Club, we took off, and three flying hours later, were in Boston. When all the excitement died down, I found it was too late to hand in the Class notes — so here we are.

While we are on the subject of flying, I'd like to do some quoting from a fine letter from Air Force Pilot Glenn D. Jackson. Glenn received his wings in February and was assigned to Bergstrom Air Force Base in Austin, Texas, where he will be flying Strategic Air Command's aerial tankers. He comments on the proximity to the University of Texas and says, "I am still very single, but two years with 5,000 Texas girls will probably change that status." Glenn tells of literally bumping into Roy Salzman, and offers the following information: "Roy had put in a tour in civilian life and was finding it rather enjoyable, when ole Uncle Sam came into the picture. As in the course of all good Air Force pilots, Roy started at Lackland Air Force Base in San Antonio for pre-flight. From there he went to Graham Air Base in Marianna, Fla., for primary flying training, and graduated at the top of his class. Roy's wife, Doris, is expecting in April or May."

Another Air Force man Glenn tells of is Jim Abrahamson. Jim has his wings, and has elected to remain in the training command as an instructor. As Glenn says, "One day a student, and the next an instructor — that is the way of the Air Force." Word has it that Pete MacBurnie has recently completed his first solo of a T-33 at Webb Air Force Base in Texas. Pete is married to the former Gwendolyn Parker of Presque Isle, Maine, and has two daughters.

With much regret I report to you of the death of Dale Gillette, who passed away in December after a long illness. He was the husband of the former Barbara Elaine McGerity, and they were married in August, 1955. He had been employed as an industrial engineer in the work standards department of the Lincoln-Mercury Division of the Ford Motor Company in Detroit.

Even though news has been scarce, the Nasitirs never let us down. This term Dave is teaching an adult education class concerning "The Family in a Free Nation." Should be a very interesting experience. Rumor has it that Len Wharton is planning to study chemical physics at Harvard next year when he returns from his two-year jaunt as a Marshall scholar in England. There is a new addition in the family of Joyce and George Rubissow. Now don't jump to conclusions; it's a cat — name of Whimsy! Jack Dixon writes that he's hoping to get another chance to write "I'm in Japan" this summer. Don't think he will be a bit sorry to leave Korea temporarily or permanently.

Since their marriage last September, Margie (Cohen) and Lloyd Gilson, one of these spectacular all-M.I.T. couples, have been living in Springfield, Mass., where

Lloyd is a research chemist with Chicopee Manufacturing Company, a textile firm. Come April, they'll be heading for the sunny South. To be more specific and less romantic, Fort McClellan, where Lloyd will follow in the footsteps of such greats as Les Lee, Hal Stubing, Mike Halpern, et al. Dave Willbourn graduated at the top of his class about Christmas time at McClellan, by the way — doing the old Alma Mater proud.

Joyce Davis has retired from studenthood and is now working as an engineer in New York City. The marriage of Alicia Larde and Professor John Nash of the Mathematics Department at M.I.T. is scheduled to take place on February 16 in Washington, D.C. Tommy Doherty was recently in New York (with one ticket to "My Fair Lady"). He has landed a great job with a Boston architect and is happily working, going to school, and gallivanting around in his "leisure" time.

Tech men are still getting married in droves. Topping off the list is that of George Goepfert to Petrina Laura Griffin of Cumberland Center, Maine, a Chamberlain graduate. George had been a Fulbright scholar at Technisch Hochschule at Hannover, Germany, and now is employed by Standard Oil at Baton Rouge, La. Alan Dana walked down the aisle in November with Dorothy Sue McCann of South Portland, Maine, and Westbrook Junior College. Al is at Johns Hopkins Medical School in Baltimore, Md. In November, Frank Perkins took the vows with Geraldine Louise Gurney of Brockton, Mass. After a two-week honeymoon tour of Virginia, Frank has settled with the Army Corps of Engineers at Ft. Devens. In the same month, Cleo Stearns married Eleanore D. Orr of Wheaton College and Crestwood, N.Y. In October, Harold Cohen became engaged to Sheila Helen Appelson from New York City who is a junior at Boston University. Hal is now serving a two-year tour with the Army. Dan Brown is now engaged to Louise Rayin who is a junior at Simmons. They plan to be married in June. Dan is in the graduate school of Course X here at Tech.

Since your male correspondent is now a member of the U.S. Air Force, he has had a chance to bump into a few classmates in a similar situation at the Cambridge Air Force Research Center. Fred Morgenthaler, Dave Lipke, John Lyden, Dick Koehler, and Dan Moore are all out at Hanscom field in Bedford wearing the gold bars, and Von Sowers and Bill Lehmann are working out there as civilians. Bill hopes to be called up soon, hoping to get assigned at AFCRC for his R.O.T.C. active duty commitment.

Fred Hennie received his S.M. in February, and interrupted his studies for a six-month tour of active duty. He plans to be back at Tech in September studying for a doctorate in Course VI. Fred had quite a record as a teaching assistant, and as far as I know is the first member of our Class to be teaching graduate recitation sections. At the recent electrical engineering doctoral qualifying exams, Jane (Hodgson) Dennis, Mike Horstein, Shim Frankenthal, and Ron Howard came through with flying colors. However, Tom Stockham is leading the race, having passed his in September.

I received a notice from the Alumni Association that Sandy Goldman, who received his S.B. and S.M. in VI-A in February, has been re-affiliated from the Class of 1956 to his original Class of 1955. This is an important thing to remember, you architects and VI-A men, for you are officially considered to belong to the Class of 1956. Only re-affiliation will insure that you get letters from the Class President and notices of our reunions. A note to the Alumni Association will do the trick handily. Sandy is staying on at Tech until June as a teaching assistant in Course VI. — DELL F. LANIER, *Secretary*, 54 W. 71st Street, New York 23, N.Y. L. DENNIS SHAPIRO, *Assistant Secretary*, 1039 Massachusetts Avenue, Cambridge 38, Mass.

1956

Very often I regret the six-week delay between writing and publication of the Class notes, but this time is even worse. Between early February and mid-March the educational institutions of Cambridge occupied much space in the pages of the Boston newspapers.

Late in January, a setback of rather innocent character was received when the weather turned unusually mild. This was contrary to public prediction by the Meteorology Department, but, after a valiant try by Old Man Winter in late December and early January, mildness came to stay. A short time later the versatile science wonders put on display a million dollars worth of rare string instruments including numerous Stradivarius violins. Not to be ignored, the scientific minds announced their replacement not only of the vacuum tube but of the transistor — the Cryotron. Size — about the same as a whisker of your morning beard. One small obstruction to immediate use; it operates only in liquid helium. About this time, Harvard, tiring of reading about Tech at the breakfast table, decided to eclipse everyone by announcing that she was going to raise \$82,500,000 in two years to spruce up the Harvard Square area.

This is always a difficult item to beat, but the fertile minds of the students came up with an age-old answer on March 1-3 — public rioting. The complete details are not in yet, but the theme sounds familiar. Friday, March 1, the residents of Baker House boycotted the dining hall in protest of poor food. Now that the powder keg was prepared, the administration announced on Saturday a general increase in room and board. Well, as usual, East Campus blew up first but rapidly migrated to West Campus to a familiar spot in front of the Dean's House. A crowd described as being between 500 and 1,000 blocked traffic on Memorial Drive and built bonfires with accompanying hi-fi music. At one and three in the morning, Sunday, both the MDC and Cambridge police responded to break up the demonstration, nabbing 31 in the process while injuring eight policemen. On Sunday afternoon the administration was laconic in its public announcement that 26 of the 31 arrested would be tried by student government, and that a probable cause of the riot was the unseasonably warm weather. See what happens when

the weather doesn't agree with the Meteorology Department.

The commons question has been heartily debated the last few years and was apparently reaching a solution this year with Walker under the guidance of a caterer, Baker soon to follow, and the new dining hall at Burton to be the same. With this, I would like to point out two facts to the undergraduates; (1) The Alumni are rather reluctant to entrust their money for improvement of dining and living facilities if these facilities will be scorned and damaged by vandalism, and (2) the public will be reluctant to donate funds for the same reason. Therefore, board and room would have to be still higher to make the facilities self-supporting.

I have the following engagements and weddings to announce. John Collins wed Barbara Elinor Jennings of Cambridge in February; John Cronin wed Lois Billington of Rye, N.Y., in June 1956; Elmer Hanks wed Margaret Anne Connors of Dedham in July 1956; Philip Platzman became engaged to Lorraine Sallet of Brookline in October 1956; Anthony Praznik became engaged to Judith Lee Clark of Quincy early in 1957; James Robertson became engaged to Maryana Sheahan of Hopkinton in the summer of 1956; Von Sowers wed Jane Knight Atwood of Boxford in September 1956; Philip Trussell wed Priscilla Norma Belyea of Milton in September 1956; and Francis Zenie wed Dorothy Angela Paulonis of Brooklyn, N.Y., in April.

In the service branch I find that Jack Saloma has finished his six months of active duty with the Army and plans to enter Harvard Graduate School next fall. Arnold Breeden reported to Chanute Air Force Base in Rantoul, Ill., in March. Arnold had been working for the Glenn L. Martin Company in Baltimore. Jim Robertson reported to Fort Lee, Va., in February. Recent letters from Larry Jacowitz in Columbus, Ohio, Marty Reiss at Wright-Patterson Air Force Base, Phil Bryden in Montreal, Guy Spencer in Fort Worth, and my fiancée in Newton have been very helpful in preparing these notes.

The physical science education committee seems to be making good progress. This committee contains prominent educators from colleges, educational organizations, and secondary schools, but is based at the Institute. Together these people are forming a versatile physical science course for use in secondary schools to more equally prepare the new generations. I believe their most difficult hurdle will be in overcoming teachers who do not wish to change.

At least 20 per cent of the Class is tuned in on this channel and the number grows each month. Next month many of our friends, lost in previous years, will rejoin us. — BRUCE B. BREDEHOFT, *Secretary*, 1528 Dial Court, Springfield, Ill. M. PHILIP BRYDEN, *Assistant Secretary*, 3512 Shutter Street, Montreal, Quebec, Canada.

1956G

Casually perusing the news of graduates this month, marriage is the under-

lying theme of this month's column. Official duty with the United States Navy has kept us from reporting past social events promptly, so we shall make up for lost time now.

The marriage of Lieutenant Walter Clifton Knowles, Jr., U.S. Army, to Judith Davis of Somers, Conn., took place last fall. The former civil engineering graduate student and his wife are now in Alexandria, Va. A recent doctorate student in chemical engineering, Dr. Frank Feakes was married to the former Marcia Lane.

His bride is a graduate of Wellesley College. One of the ushers for the Feakes wedding was Tom Mix, our Class president. Dr. Feakes remains in a research position with the Institute. Joseph B. Taylor, who was in the Civil Engineering Department, married Emily Warren of Tufts University. The Taylors reside at 21 Spring Valley, Arlington, Mass. Joe has become associated with the E. Fletcher Granite Company as a structural designer. Lieutenant Gordon Zunker has taken Frances Sylvester as his bride. A gradu-

ate of aeronautical engineering, he is stationed with the Air Force at Wright-Patterson Air Force Base, Dayton, Ohio. A few local marriages took place in the fall: Philip Brooks to the former Martha J. Ellis; Melvin Weiner to Florence Cohen; and Irving Melnick to Elaine Cohen. Melvin Weiner received an S.M. in electrical engineering, his bride a degree from Connecticut College for Women. — CHARLES T. FREEDMAN, *Secretary*, Naval Administrative Unit, Sandia Base, Albuquerque, N.M.



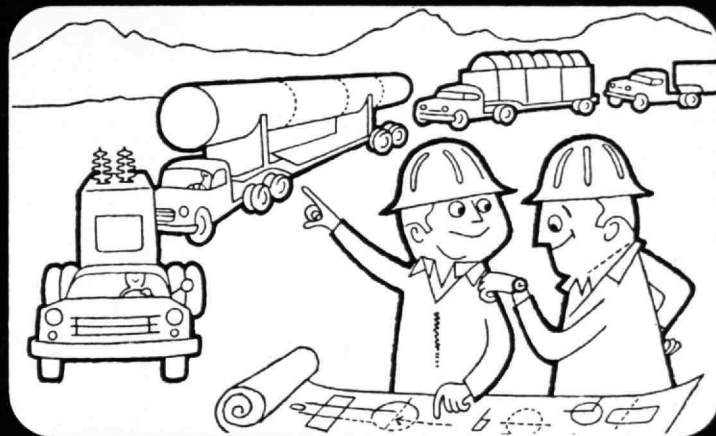
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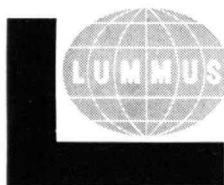


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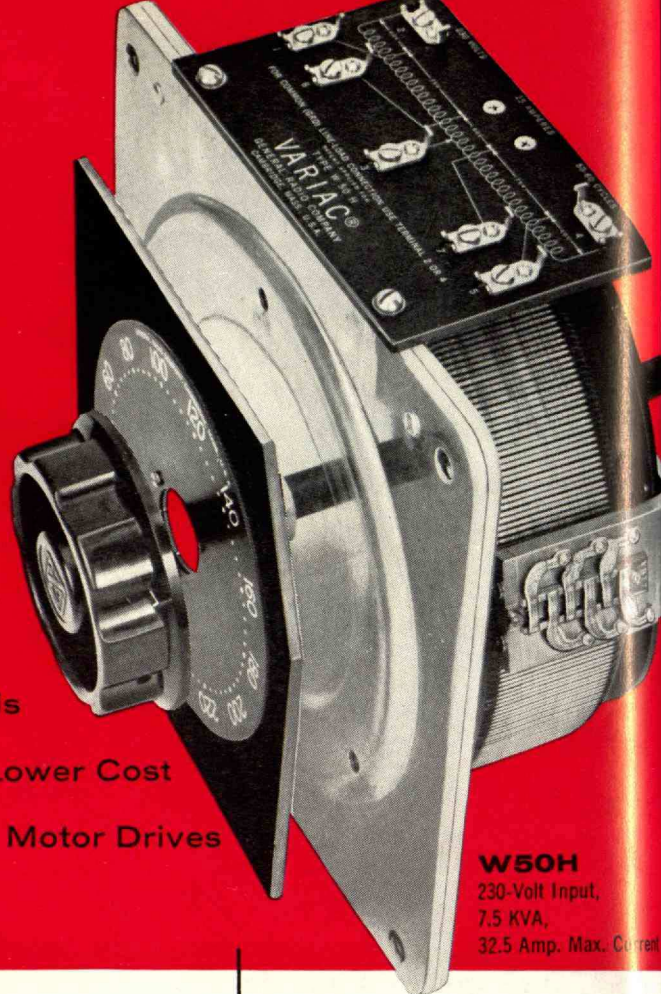
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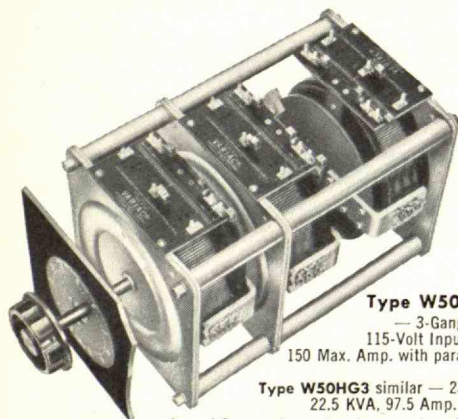
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Maximum Current (amp)	50	45	32.5	31
No-Load Loss at 60 c. (w)	50	50	50	50
Dial Calibrations*	0-115 0-135	0-115 0-135	0-230 0-270	0-230 0-270
Angle of Rotation (deg.)	320	320	320	320
No. Turns on Winding	190	190	298	298
D-C Resistance of Winding (Ω)	.075	.075	.3	.3
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